Superb ACU disc/tape offers PLUS 10 fabulous Ubisoft compilations must be won inside this issue.

AMSTRAD COMPUTER USER
ACU

MARCH 1992

ONLY £1.65
THE BEST VALUE



ANATOMY OF A GAME

From Coin-op to CPC. Join ACU at Images to experience the agonies and ecstacies of game conversion.

HI-POWER BASIC

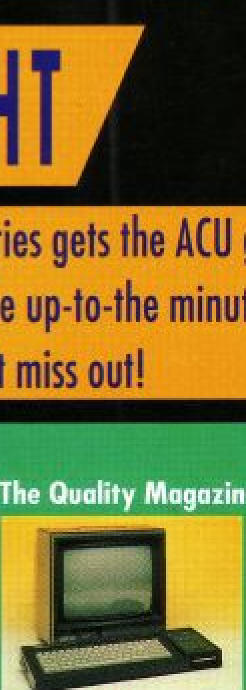
Get more out of BASIC with a little list practice.

FOUR-THOUGHT

The excellent Fun School Four series gets the ACU going over in Bomb Alley, alongside all of the up-to-the minute game blasts to hit the CPC screen. Don't miss out!

OFFICIAL — THE MAGAZINE FOR THE AMSTRAD 464, 6128 & GX4000 CONSOLE

The Quality Magazine for Users of CPC, GX4000 & CPC PLUS


CPC


GX4000


CPC PLUS

M.C.M QUALITY EDITORIAL
03
9 770952 304020


NEW
NEW
NEW
GENERATION
THE
QJ
QUICKJOY
FOOT-PEDAL
ENHANCE YOUR HOME VIDEO GAMES
. . . Sometimes just using a Joystick is not enough to beat today's generation of computer games . . . The Foot Pedal Controller works in conjunction with a Joystick . . . By aligning any three of the Joystick functions to synchronise with the Foot Pedals it enhances any multi-functional game that includes flying, driving or playing sports . . . games-playing will never be the same . . .
SV·129
EXAMPLE
In a car racing game:
FAST
Change Gear
LEFT
RIGHT
SLOW
using joystick and Foot pedal together
NO USE
LEFT
RIGHT
NO USE
Change Gear
SLOW
FAST
This setting transfers the up, down and fire controls from Joystick to 3, 2, 1 buttons of Foot Pedal respectively.
SET UP
COMPUTER
• Simply plug any standard 9-Pin Joystick into the cable supplied.
• Connect the Foot Pedal into your Computer - Amiga, ST, C64, 128, Vic20, Amstrad CPC, Spectrum (with interface), BBC (with interface).
• The Foot Pedal is now ready to use.
SPECTRA VIDEO
SPECTRAVIDEO, UNIT 27 NORTHFIELD INDUSTRIAL ESTATE, BERESFORD AVENUE, WEMBLEY, HA0 1NU, ENGLAND
TELEPHONE: 081 900 0024 · FACSIMILE: 081 903 6625 · SALES HOTLINE: 081 902 2211

BrunWord

ROM Module £125

The BrunWord ROM Module is a compact unit which plugs directly onto the expansion socket of the CPC6128 or 6128 Plus. It overcomes the memory limitations of the CPC computer by incorporating the entire BrunWord Elite system into one very high capacity ROM (256K bytes). The module measures three inches wide, half an inch thick and extends just two and a half inches behind the computer.

On the ROM we have BrunWord Elite, Headline, 10 Headline fonts (including 'Chelmer' and 'Clacton'), 8 fonts for downloading to a 24 pin printer, BrunSpell, 30,000 word dictionary and Info-Script. Second disc drives owners can have KDS ROMDOS added (not 6128 plus) for £15 extra, and remember that no ROM box is needed.

Great Power

Plug on the module, switch ON the computer, type |BW and the whole BrunWord Elite system is in the computer ready for immediate use. You can type into the word processor, check the spelling, print it out, use the database to print labels or search for and transfer data to the word processor, print using headline fonts and 24 pin fonts, all without a single disc operation, except maybe to load data into Info-script. Any BrunWord Elite facility can be used without upsetting other data. You can even view screen dumps stored on disc, or format a 3 inch or 3.5 inch disc, without disturbing the text in BrunWord or the data in Info-Script.

Printing Pictures

The BrunWord ROM module has a host of new features including five high quality, high speed screen dump routines for 9 pin and 24 pin printers. These are special routines using the BrunWord Elite 8 bit printer status port and they print incredibly fast compared to desk top publishers. This entire page *including* the drawing, the large 'BrunWord', the address, credit card symbols and Teddy, was printed using the BrunWord ROM module and a wide carriage 24 pin printer *in one printing operation.*

Relative Reverse

For printers with reverse (Amstrad DMP2160, Star LC10 etc), there are now three reference points. The top of the page, the current print head position and any point previously defined within the text. The print head can be moved to a relative position above or below any of these references. This refinement coupled, with the new ability to control the box reverse, make complex layouts much easier to design and give faster, more efficient printouts.

Small and Light

The BrunWord ROM Module has been made as small and light as possible. When mounted directly onto the computer it is very very reliable. You are likely to damage the keyboard if you jolt it hard enough to give problems. (Other ROM systems use an unwieldy ROM box which can 'crash' with even the slightest knock).

Very Serious

The BrunWord ROM Module is perfect for the basic machine, you need no other add ons. However, anyone who has two disc drives knows the frustration of inserting a disc, asking to load a file and being told that the other drive has no disc in it. You simply forgot to inform the computer to change over drives. You know there's no disc in the other drive, the computer now knows, so what's the problem? The software doesn't test *both* drives!!! That's now a thing of the past. The BrunWord ROM Module will load from whichever drive has the disc in it. It's simple and it's brilliant, and if your second drive is a 3.5 inch, you can use the fast file system which loads a 64K file into Info-Script in 7 seconds or (with extra memory) a 256K file in 16 seconds.

Quote

"It's totally brilliant..... carries on the extreme user friendliness of Brunning products to a very high standard.... I have one of these little gems plugged into the back of my CPC right now. As you can imagine, anything that passes through the ACU office can expect to come in for a hard time and, I can safely say that to date, the BrunWord ROM has performed in an exemplary fashion on all fronts."
Chris Knight (ACU Editor) - ACU August 1991.

BrunWord 6128 £30

Complete word processing package (disc) with word processor, spelling checker and card filing programme. BrunWord 6128 out performs all other word processors for the CPC6128. It's high speed screen routine, gives it a very fast response and the editor features are logically arranged to be easy to learn. The spelling checker, with its dictionary, load into memory at the same time as the word processor, making access very convenient and exceptionally fast. It is supplied with a 40 page manual and a tutor file.

Info-Script £50

Complete data processing package (disc), including all the features of BrunWord 6128 and BrunSpell. The word processor and database can be resident together giving the speed and convenience of access with no disc delays.

9 Pin Elite £55

The Elite system for 9 pin printers (on disc) consists of BrunWord Elite, BrunSpell, Headline, 8 bit printer status port and 7 'type setting' fonts (fonts are 24 pin in size but for 9 pin printers). Total price £55 inclusive.

9 Pin Elite+Info £92

The Elite system (on disc) as above but including Info-Script and a backup disc. Total price £92 inclusive.

24 Pin Elite+Info £90

BrunWord Elite (on disc), BrunSpell, Info-Script, back up disc, 8 bit status port and 7 'type setting' fonts for downloading to a 24 pin printer. Total price £90 inclusive.

References

ACU	SEP	1990	Page 58/59	- Encryption.
ACU	OCT	1990	Page 56/57	- Headline.
ACU	DEC	1990	Page 24/25	- Info-Script.
AA	FEB	1991	Page 18	- BrunWord 6128
ACU	MAY	1991	Page 42/43	- BrunWord Elite.
ACU	JUN	1991	Page 60/61	- Elite Font Editor.
ACU	AUG	1991	Page 20/21	- BrunWord ROM Module.



'William Taylor'

This delightful line drawing by Chris Rothero is one of the illustrations in 'Strawberry Fair', a book of traditional songs and easy piano music, published by A & C Black Ltd. It was Dart Scanned into four 'screens' by agreement.

Send cheque/PO/Access number/Visa number to:-

Brunning Software

138 The Street,
Little Clacton, Essex, CO16 9LS.
Telephone (0255) 862308

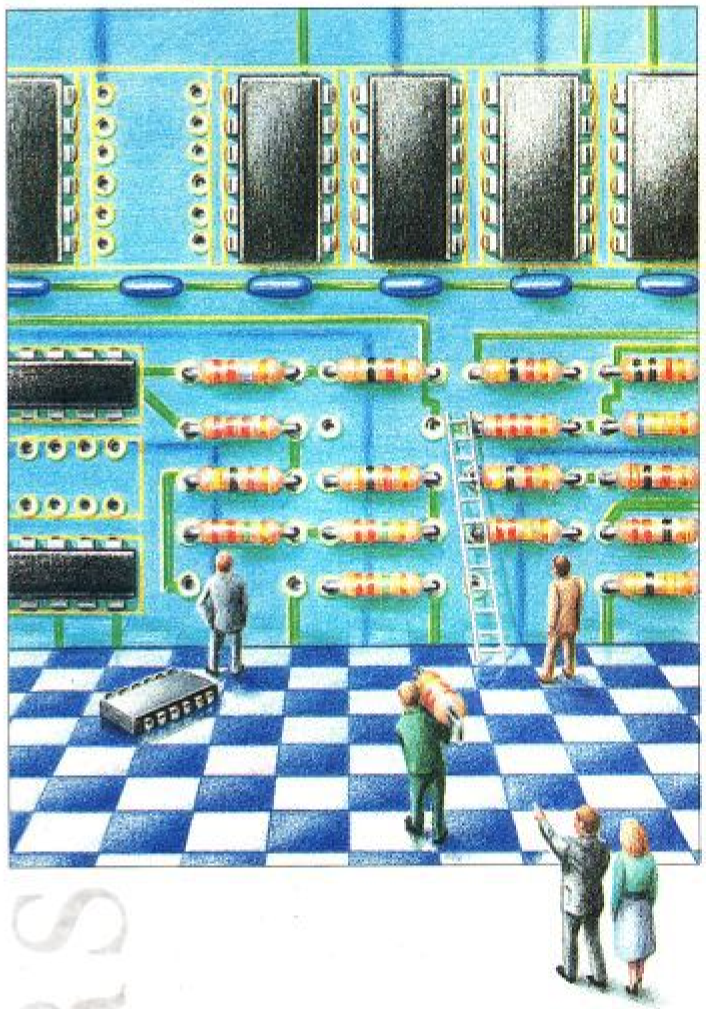


BrunWord 6128 with BrunSpell & DataFile. . . £30.00
Info-Script with BrunWord 6128 & BrunSpell. . £50.00
9 Pin BrunWord Elite £55.00
9 Pin BrunWord Elite with Info-Script. £92.00
24 Pin BrunWord Elite with Info-Script. £90.00
Elite Font Editor with 'Chelmer' & 'Clacton'. . £25.00

Supplied on 3in Disc for CPC6128 or 6128 Plus.
** You must state which computer. **

All prices are inclusive for UK. Overseas orders sent insured air mail - Europe add £2.50 : Rest add £7.50

Amstrad Repairs



If something is wrong with your Amstrad CPC or PCW, who better to turn to than the National Repair Centre.

For all repairs to your computer, one low payment covers diagnosis, repair (including parts and labour) and delivery back to you.

The experience and expertise of our technicians ensures that your computer is repaired to the highest standard at the lowest cost.

To schedule a repair simply call Michelle on 0733 391234.

Please be ready to give your name, address, computer type, serial number and the type of fault.

The costs are:	*CPC 464* -	£57.45
	CPC 6128 -	£57.45
	PCW 8256 -	£85.00
	PCW 8512 -	£86.00
	PCW 9512 -	£115.00

All prices are inclusive of VAT, and payment can be made by cheque, postal order or credit card.



AMSTRAD REPAIRS

The National Repair Centre
0733 391234

FMG House
Newcombe Way, Orton Southgate
Peterborough PE2 0SF

ONE PRICE COVERS ALL PARTS AND LABOUR

Published by MCM Ltd.
A division of MCPC Ltd.
Panini House 116-120
Goswell Road, London EC1.
Editorial enquiries:
Tel: 0726 850539
All other enquiries:
Tel: 071 490 7161

Editor
Chris Knight

Group Technical Editor
John Taylor

Designers
Paul Ellis
Adrian Hulf

Illustrator
Julian Sharp

Group Advertisement Sales Manager
Lynda Elliott

Advertising Executive
Anastasia Ubaka

Production Controller
Jayne Penfold

Production Assistant
Rachel Dixon

Publishing Director
Wendy Palmer

Deputy Managing Director
Ray Lewis

Group Managing Director
Peter Welham

Subscriptions
LAZAHOLD
PO Box 10, Roper Street,
Pallion Ind. Est.,
Sunderland SR4 6SN.
Tel: 091 510 2290.

Yearly rates:
UK £19.80
Europe £34.70
Rest of the World £48.60

Distribution
IPC Marketforce Tel: 071 261 5000

Colour and Mono Origination
Ebony
Heathlands Industrial Estate
Liskeard, Cornwall
Tel: 0579 46880

Printed and bound
by BPCC, Colchester. Covers printed by Spottiswoode Ballantyne, Colchester.

Published on 1st Thursday of month preceding cover date

REGULARS

FEATURES

SWIFT RELEASE

A brand new offering from the Middlesex based Citizen outfit looks set to secure success for 1992, as 24 pin sales continue to expand.

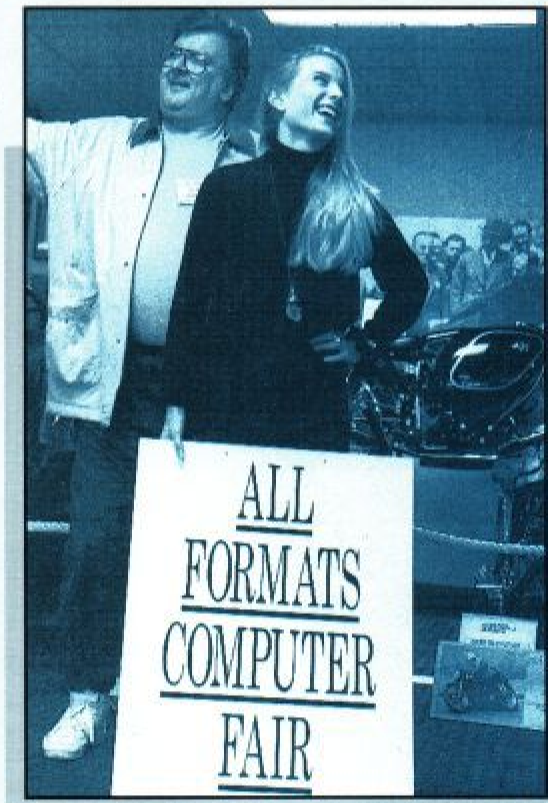
The Swift 24e 24-pin dot matrix printer is an enhanced version of the highly popular Swift 24, and boasts a host of improved features, including increased speed up to 216 characters per second (cps), a quiet mode, the citizen Utility Disk, two additional fonts and a free colour kit worth £38.

The beast is compatible with IBM, Epson, NEC and Citizen emulations and has paper handling facilities including push-pull tractor, automatic paper loading, parking, short tear off, bottom feed and multiple copies.

Working at an excellent 52 Db in quiet mode, it certainly won't disrupt your concentration and, the good news is, that it won't break the bank, retailing at £369 +VAT.

Ideal for small businesses, schools and home users, the Swift 24e is well worth a look at, if you're on the hunt for a reliable, heavy duty workhorse. Available from all the usual Citizen outlets, you could try giving Citizen a ring on 0895 272621 for more information, before taking it out for a test spin.





FAMILY MATTERS

Due to the increasing popularity of the All Format Computer Fairs, an extra member of the Riding family has been taken on to take care of advance ticket and stand bookings.

John Riding, the former sole agent for these affairs, has taken on his daughter Christian, in a bid to cope with the increased workload brought about by the new multi-venue format of the fair, and to guarantee the ongoing success of the events.

At the last count, there were no less than five fairs in January alone so, if you want to know the latest on venues and dates, keep your eyes glued to these pages, or try giving the Ridings a buzz on 0225 868100 and tell them where you read about them!

GET CLUBBING

News has just arrived of the grand relaunch of the Mosses Computer Club up in Bury, Lancashire, a longstanding affair which, due to lack of interest, has been in danger of disappearing altogether of late.

As Keith Rothwell, a founder member of the club, states: "It is felt that the collapse of this group would be a loss to the Mosses Centre as a whole and, therefore, every effort is being made to support it and try to halt its decline."

Arrangements are in hand to relaunch the once-popular gathering straight away. The Club meets at Mosses Centre, Cecil Street, Bury, Lancashire, on the second and fourth mondays of each month, commencing at 8pm, and the following program has been arranged to start the ball rolling again:

13th January 1992
An introduction to the IBM PC and its Operating System-Michael Bainbridge
27th January 1992
Aspects of computing today-Marianne Dickinson
10th February 1992
'Talking' computers-Keith Rothwell
10th March 1992
Annual General Meeting.

The Mosses Community Centre is located close to the Town Centre, not far from exit 2 of the M66 Motorway, with adjacent, large, free car parks and good access and facilities for the physically handicapped.

So, if you fancy getting involved, why not take a trip down to Mosses, raise the subject of computing in general, and Arnolds in particular, and do your bit for the environment by saving this club from extinction. For more details, try ringing the centre now on 061 761 2079.

D&D TIME

You've played Hero Quest, now it's time to get into the real thing – Dungeons and Dragons. Due to the increasing popularity of this evergreen adventure quest, Birmingham based Centresoft has just set up a major distribution deal which will see the game on display in most major computer shops around the country.

Set up as an ideal impulse purchase for computer based players, the new, easy to play starter pack will cost you a mere £14.99 and comes complete with everything you would expect to find in a true D&D package.

Featuring a step by step folder system to help you through the early stages, a set adventure for levels 1-5, pop up characters and a full D&D Cyclopedia, you'll find everything you need to get up and running in this superb package.

A LITTLE LEARNING

Buying a CPC for educational purposes has always been an excellent idea and, if you got one this Christmas for just that reason then you're in for a real treat, courtesy of Rickitt Educational Media.

Over the years, there has been a veritable host of software releases to help all ages, in all manner of subjects and basically, if it has been released, then you'll find it in the Rickitt 'Educational Software-A Parents' Guide' catalogue.

As a mail order company, catering for pre-school learners right through to students studying for GCSE, The extensive selection offered by Rickitt is colourfully displayed in three Directories each year.

This is where the good news comes in for ACU readers. The guide, which usually costs £1 from all leading newsagents, is now available absolutely free to yourselves.

If you want to get hold of a copy of this superb directory, simply contact Rickitt at the address below, stating that you saw the offer in ACU, and your free copy should soon be winging its way to you.

For everything you need to know about educational software, contact Rickitt Educational Media at Ilton, Ilminster, Somerset. TA19 9HS. Alternatively, try giving them a ring on 0460 57152, you won't be disappointed.

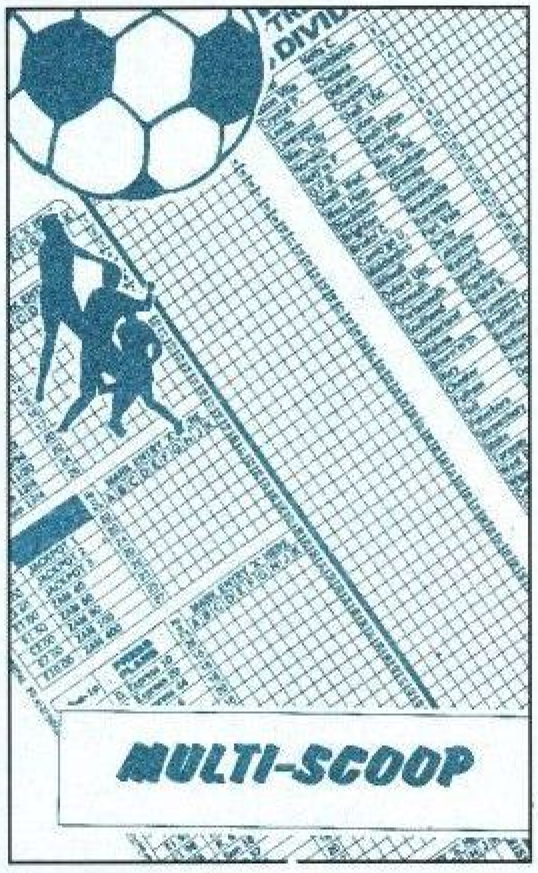
SCOOP!

If you are a regular customer of Lancashire based Intraset, then you will already know of some of the excellent discounts available from the extensive software list. However, if you have never taken advantage of the vast array of Intraset tipster programs, then this is the time to do so, following the set-up of a brand new service to new and old subscribers alike.

Mutli-Scoop, a superb Football Pools Syndicate network, has been devised to be both fun and profitable for its members, whilst forming the backbone of some handy home income to boot.

How does it work? Very simply indeed. What you do is invest as little as £1 per week, leaving Intraset to invest 50% of all subscriptions every week of the year on football pools, and even horse racing from time to time.

Every paid up member of the syndicate is guaranteed a share in every win and, if you want to earn more money, then get recruiting. As soon as you are a fully fledged member of the syndicate, your personal identification card and number will allow you to introduce new members to the scheme, giving you up to 20% commission on every new member's subscription.



Work that out and you'll see that by introducing just five new members, you'll have made your original investment back, and it doesn't stop there. Just keep recruiting and you'll soon be in the black, especially as you also get a commission on every subscriber taken on by your subscribers.

Got all that? If you have, then you should by now be champing at the bit to find out more info about Multi-Scoop. Without further ado, if you want to take part in a guaranteed success story for very little outlay, then get in touch with Ken Chadwick at Intraset Limited, 10 Woodside Avenue, Clayton-Le-Woods, Chorley, Lancashire, PR6 7QF, or telephone on 0257 276800.

It has to be worth investigating, don't you think? Good luck and trust the experts to place your bets in your favour.



ZIGGY'S MAILBOX



THE RIGHT CONNECTIONS

I am of that generation which is stoutly resisting the pressures to give up the collection of vinyl, and re-invest in compact discs. I have, however, been motivated over the years to move from standard 8mm cine to Super 8 and now to video. Though I still have the ZX 81 I built from a kit (actually, through the good offices of WH Smith, it was the 3rd kit before the low grade bits and pieces could be persuaded to work harmoniously as the good Sir Clive intended), my pride and joy is now my CPC464, upgunned to 6128 with all the trimmings. Imagine, therefore, my concern at being advised to change to an Amiga – or even a BBC, Spectrum or Commodore 64! "Why?", you may ask. Well, it is because all these have a video connection enabling their graphics and other output to be recorded onto video tape. The Amstrad range has very excellent qualities, but video compatibility is not one of them.

I managed to find a shop that still had an MP2 modulator – you remember, that now ancient piece of kit that turns the CPC output into RF so that it can be plugged into the back of the domestic television set. Armed with this, I thought the problem of turning my graphics screens into video titles would be solved. Not a bit of it; an attenuator seemed to help a little, but the choice was between a wintry snow scene or the Moire patterns of particularly shot silk. Some research among the experts around the town suggested that a Gen Lock program used with one of the aforementioned computers was the only way to solve the problem. I was persuaded that this was an excellent solution, which would also allow control of VCRs to enable mixing and merged titling. Marvellous. But expensive, no use for the Amstrad, and far too technical to persuade any canny wife of the reality of the need!

However, it set me thinking, and I was quite sure that there must be a way of persuading Arnold to work his magic, simply, cheaply and to an acceptable quality standard – and so it transpires. No-one interesting in making their own video films spends long before a second VCR is bought at a boot sale "for experimental purposes". Connect the CPC to the MP2 and plug the RF cable into a VCR, but instead of putting the recording video cassette into this one, connect the video output from this VCR to the input of the second and use this to record.

The quality is quite dramatically better. Not, perhaps, up to the standard of a new Amiga, disk drive, graphics and Gen Lock program package – but a whole lot cheaper and quite acceptable. No doubt there are a lot of sound theories to explain why the system should not work but, fortunately, it does and the information may be just what those with an Arnold, a camcorder and a wife need to keep all three!

Thanks for your help in the past, maybe this tip can help someone in the future.

Colonel (Retired) G.H.Silvey CBE
BSc, Midlothian. Scotland.

Ziggy: Well, first of all, thank you for your missive Colonel. I think it just goes to prove our argument further that you don't need to upgrade, when you can do just about anything on an Arnold that you can do on bigger and bulkier machines, but for far less expense. This indeed is another fine example and, if anyone else has anything to add, on this or any other point, to demonstrate the exceptional qualities of the CPC, don't hesitate to write and tell us.

WALLBUSTING

Please print this letter for the sake of the sanity of all those readers who felt that they wasted an awful lot of time typing in the Wallbuster listing (October 1991), only to find that it does not work.

There needs to be a space between the two sets of inverted commas in line

330 (at least on my PLUS machine), otherwise you get an error which does not reveal itself on the screen, as the screen is turned off when it occurs and the program dies.

Thanks for a great magazine, but please publish more letters.

Stephen Jeavons, Camberley, Surrey.

Ziggy: Correction accepted, apologies offered. Here's hoping that this should sort out a few problems. As to the letters, we shall do our best to squeeze out more space for your views and comments.

NOT SO EASY

With reference to the article in the December 1991 issue of Amstrad Computer User, entitled Easydraw, (page 58).

This listing is fairly long and a couple of the listed lines are different from the list, as published for the earlier part of this program in the November issue.

The choice of print in the magazine that lists the figure 1 and the letter l precisely the same, gives me very little chance to type the list in correctly.

Perhaps you will be kind enough to print the full listing of this program again, preferably on single colour paper, ie. not black and white curves, with the L and 1 distinctly different and, finally, with proof reader listings at the end of each line.

Ian Dempster, Selly Park, Birmingham.

Ziggy: As the Easydraw program progresses, certain line numbers are, indeed, altered, to make way for the latest developments to the program. This may account for the discrepancies between your listings. As to the 1 and l problem, we have had a fair few letters on the subject and, to put all of your minds at rest, we shall, when the series finally comes to an end in the not too distant future, be printing the final, completed version, with proof codes to boot.

We shall try and make the differences between letters and figures as clear as possible while, for those of you who don't want to get sore fingers can buy the whole program already prepared on disc or tape, from the Pieces section later on in this issue. I hope that makes you all sleep a little easier.

THE OLD WOUND...

I am writing in response to the letter from a reader concerning cover tapes, which you published recently. I find it irritating when a reader writes, as he does, seemingly keen to present only half-truths and conveniently ignoring other facts which might undermine his arguments.

He states that "All readers should be considered, not just 464 users. "This is one of the things which I find annoying. A cover cassette would be of benefit to 464, 664, 6128 and 464+ users; surely they would represent a clear majority of ACU's readership? And, in this case, how could a cover cassette possibly be catering just for 464 owners?

My interest, too, goes further than the FIRE button on a joystick, (in fact, I dislike blast-'em-up games). I enjoy programming, learning machine code etc. A cover cassette need not be crammed with games. I would prefer utility programs.

The reader further stated that a cover cassette would be, to him, a useless piece of junk. He implied that he was only interested in 'serious' applications.

If this is the case, why is it that he has missed WAVE's recent advertisement? For a fee of just £20, plus postage, WAVE will modify a 6128+ machine so that it can load cassette software from an external cassette recorder with a jack lead. (Obviously, the older 6128 has a remote socket for a cassette recorder).

I know that the reverse of this argument is that 464 owners should buy a disc drive. Many have, others cannot afford to. However, it seems to me that it would be much cheaper for 6128+ owners to have their machines modified, giving them immediate access to the massive amount of cassette-based software available (and not just the budget section), than it would be for 464 owners to buy disc drives. I am a 464 owner and I have no plans to add a disc drive to my machine-ever!

Since the 6128+ can now be modified to load cassette software, how would the reader be subsidising 464 users? If ACU want to feature a cover disc, and a rise of price in the future. I will have no hestitation in cancelling my subscription and transferring my readership to AA.

So, come on, now that I've told you how you can modify your machine to enable you to enjoy the dubious delights of the budget cassette selections, I'm certain that the reader in question can find something else to whine and whinge about.

P.L. Ramsay, Blackley, Manchester.

...REOPENS

Having read December's ACU, the dissent between 464 and 6128 users is understandable, but we can put this right.

I am sure that the majority of readers would be prepared to pay a little extra for the magazine, if you can satisfy both parties. Well, you can, if you first of all gree to a Cover Tape one month, and then next month have a Cover Disc and alternate each month.

This would put one over on our rival mags and so ACU would have a first!! Comments please.

Ray Armitage, Sheffield.

Ziggy: As I thought, the old dissent seems to be as ripe as ever. Obviously, we welcome your views and ask you to air your grievances, though obviously, we would prefer letters not to be openly hostile to other readers who have written in with their comments. Mr Armitage certainly seems to have come up with a fair solution to the problem, and a very unselfish one it is too. We at ACU will certainly be looking into this form of progress, so if anybody else has something to contribute to the debate, please let us know, so that we can consider your pros and cons.

ADVENTURE TIME

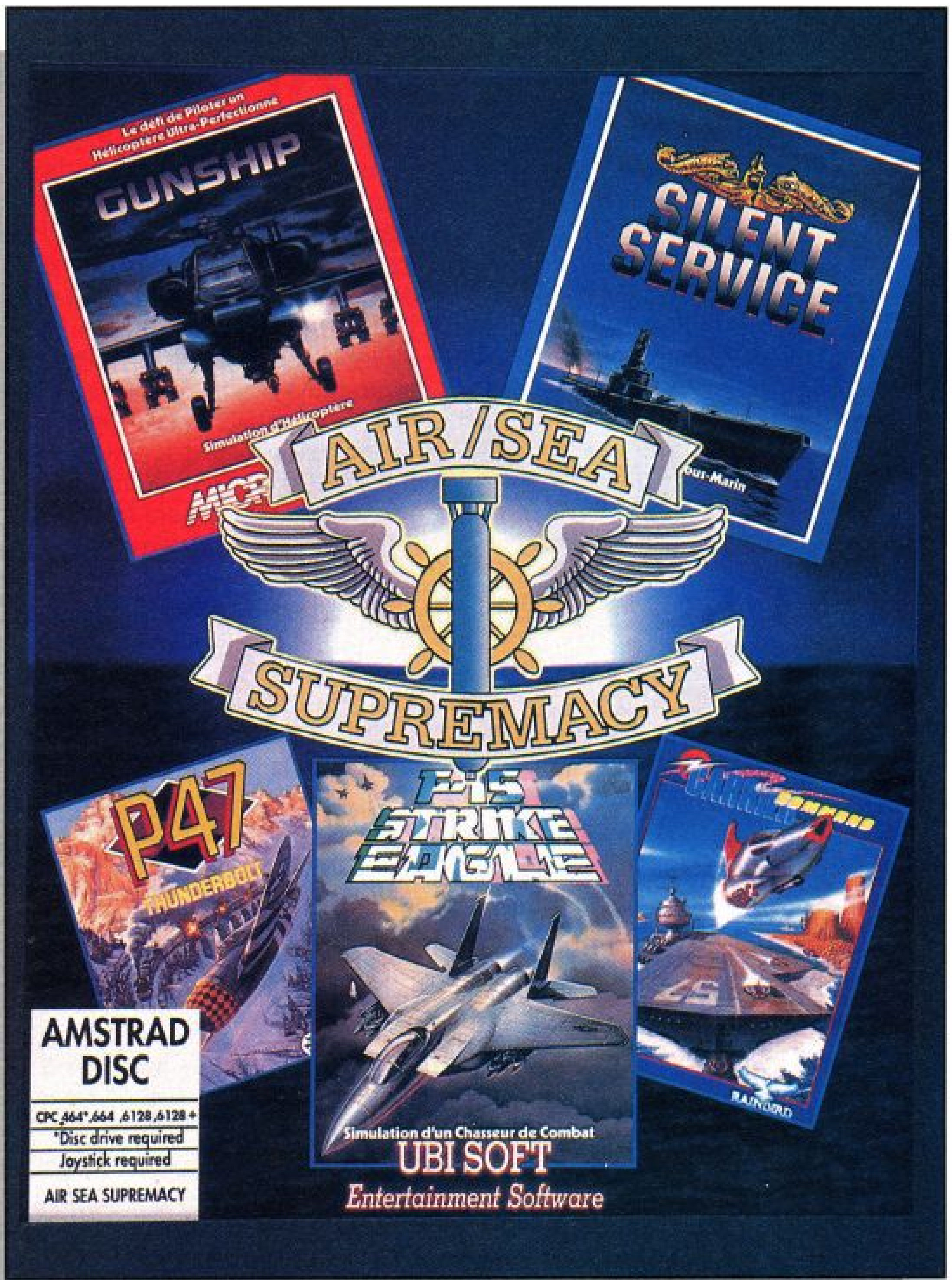
My nine year old son has a CPC 6128 and, having become a little disillusioned with zapping aliens, has turned his attention to adventure games and we have been reading with interest your articles in ACU.

You refer in the August edition to Wow Software, run by Joan Pancott, and I wondered if you could let me have her address, so that I can write off for a catalogue?

Annette Gallimore, Malvern Link, Worcs.

Ziggy: Certainly madam. Joan's address at Wow is: Wow Software, 78 Radipole Lane, Weymouth, Dorset. DT4 9RS. Wow's stocklist really is very extensive, so good luck and welcome to the ever growing band of adventurers.

COMPETITION



If you want to get your hands on some real treats, you'd better listen up, otherwise you won't stand a chance of winning one of 10 superb copies of the Air-Sea Supremacy compilation.

As you know, this is a true action/strategy blast, set above, on and below the water, so pick up your paints or whatever and get set to draw.

What we want you to do, is design a supercharged, futuristic jet plane, that is also capable of going underwater for attack. A sort of sub-aqua jet, if you like. Just send us your best drawing and the ten best pictures, to be judged by the ACU crew, will win themselves a copy of this fabulous collection. Got that, then get painting now.

don't forget to state which format you want the game on and send your entries to:

**ACU Supremacy,
Sunnyside Cottage, Carluddon, St Austell,
Cornwall. PL26 8TY.**

The editor's decision is final.


5
GAME PACK
CARTOON COLLECTION™
SLIGHTLY MAGIC 94% YOUR SINCLAIR
SPIKE IN TRANSYLVANIA 91% ZZap Silver Medal
Available on:
AMIGA & ST £24.99
SPECTRUM, C64 AMSTRAD* £9.99
MEGAGAME
SEYMOUR GOES TO HOLLYWOOD 90% YOUR SINCLAIR
DIZZY
A CRASH Smash
CJ's ELEPHANT ANTICS
CJ's ELEPHANT ANTICS 94% ZZap Silver Medal
RAZE RAVE
SLIGHTLY Magic
SPIKE IN TRANSILVANIA
MEGAGAME
SEYMOUR goes to HOLLYWOOD
"A Crash Smash 90%" The game that launched your favourite mega star.
"A glorious bounce around platform game packed with colour and playability" ZZAP
"Graphics and presentation are excellent and all in all Slightly Magic is absolutely magic." YOUR SINCLAIR
"Extremely accessible, refreshingly original in ideas and great staying power." ZZAP
"Seymour is completely brilliant. It's packed with great graphics, it's got a kickin' sound track and it's very, very playable." YOUR SINCLAIR
* Note Amstrad users have Little Puff substituted for CJ'S Elephant Antics.
CODEMASTERS
AMIGA screen shots shown.
© Codemasters Software Company Limited 1991. PO Box 6, Leamington Spa, England, CV33 OSH
HELP LINES
NEW RELEASE INFO LINE 0898 555 000 (Tells you what is being released this month)
If you can't get any further in any of these games and would like us to give hints & tips on how to solve all the puzzles just phone the numbers below. Please don't phone unless you are really stuck and make sure you get permission from the person who pays the phone bill first! Calls costs 36p per minute during off peak time and 48p per minute at all other times. (GREAT BRITAIN ONLY)
ATARI ST AND AMIGA
TREASURE ISLAND DIZZY 0898 555 092
LITTLE PUFF 0898 555 095
ROCKSTAR 0898 555 090
FANTASY WORLD DIZZY 0898 555 078
SEYMOUR IN HOLLYWOOD 0898 555 010
SPIKE IN TRANSYLVANIA 0898 555 105
SPECTRUM, AMSTRAD, C64
DIZZY 0898 555 093
TREASURE ISLAND DIZZY 0898 555 091
FANTASY WORLD DIZZY 0898 555 078
LITTLE PUFF 0898 555 094
ROCKSTAR 0898 555 090
MAGICLAND DIZZY 0898 555 096
SLIGHTLY MAGIC 0898 555 050
SEYMOUR IN HOLLYWOOD 0898 555 010
SPIKE IN TRANSYLVANIA 0898 555 105

QUODITS

BY B. FRETWELL

The aliens have landed. This one is an excellent blast em up against the clock. Simply pick up your joystick, choose your difficulty level and do your worst as the aliens appear on screen. Great stuff!

```
10 RESTORE:MODE 0:PAPER 0:BORDER 0:INK 1,26:INK 3,6:INK 0,0:
CLS:PEN 1:PRINT:PRINT"  QUODITS.":PEN 3:PRINT:PRINT"  USE A
JOYSICK":PRINT:PRINT"  OR KEYS:-":PRINT:PRINT"  {Q}UP":PRINT
"   {A}DOWN":PRINT"   {ENTER}FIRE":PEN 1:PRINT:PRINT"  GOOD
 LUCK SOLDIER"
20 SYMBOL AFTER 248:FOR I=249 TO 254:READ A,B,C,D,E,F,G,H:SY
MBOL I,A,B,C,D,E,F,G,H:NEXT:INK 4,14:PEN 4:PRINT:PRINT "  {S
PACE} TO START":x=19:y=13:WHILE INKEY$<>" ":WEND:WINDOW #1,1
,5,1,1:WINDOW #2,15,20,2,2:WINDOW #3,1,4,25,25:WINDOW #4,5,2
0,25,25
30 CLS:PRINT #4,CHR$(242);"ALIENS {BTF'91}";:PLOT 0,16:DRAWR
 0,350,3:DRAWR 636,0:DRAWR 0,-350:DRAWR -636,0:sc=0:LOCATE 1
,1:INPUT"start level{1-5}";le:LOCATE 1,1:PRINT "      ";CHR$
(242);"TIME/      ";"          SCORE";CHR$(243);:IF le<1 OR l
e>5 THEN 30
40 INK 2,2:INK 4,14:INK 5,18:INK 6,15:INK 7,12:INK 8,3,6:bl=
10+(le*3):ti=250+(10*le):FOR i=1 TO bl:c=INT(RND*4)+251:a=IN
T(RND*15)+2:b=INT(RND*15)+5:IF TEST(a*32-16,400-b*16+6)<>0 T
HEN i=i-1:GOTO 50 ELSE LOCATE a,b:PEN RND*5+3:PRINT CHR$(c);
50 NEXT:DATA 18,31,63,245,63,18,31,15,15,25,49,99,198,254,66
,63,129,189,255,90,126,66,126,60,68,130,92,42,62,73,156,66,3
2,74,37,88,26,164,82,4,60,126,90,231,219,60,219,195
60 IF JOY(0)=16 OR INKEY(18)=0 THEN GOSUB 80 ELSE IF JOY(0)=
1 AND y>4 OR INKEY(67)=0 AND y>4 THEN y=y-1:LOCATE x,z:PRINT
" ";:LOCATE x,z+1:PRINT" ";:ELSE IF JOY(0)=2 AND y<22 OR INK
EY(69)=0 AND y<22 THEN y=y+1:LOCATE x,z:PRINT" ";:LOCATE x,z
+1:PRINT" ";
70 PEN 4:LOCATE x,y:PRINT CHR$(250);:PEN 5:LOCATE x,y+1:PRIN
T CHR$(249);:ti=ti-1:z=y:IF INT(ti/10)=ti/10 THEN PRINT #1,t
i/10:GOTO 60 ELSE IF ti<1 THEN 100 ELSE GOTO 60
80 FOR i=576 TO 64 STEP -32:PLOT i,400-y*16-8:FOR k=10 TO 2
STEP -2:DRAWR -k,0,1:NEXT:DRAWR 32,0,0:IF TEST(i-16,400-y*16
-10)<>0 THEN SOUND 1,200,10,7:bl=bl-1:sc=sc+le:CLS #2:PRINT
#2,sc;:PRINT#3,bl;:PAPER 0:LOCATE i/32,y+1:PRINT" ";:i=0:a=I
NT(ti/10)
90 IF bl=0 THEN FOR i=1 TO a:PRINT#2,sc+i;:PRINT#1,a-i:SOUND
 1,i*10,0.5,5:NEXT:sc=sc+INT(ti/10):le=le+1:GOTO 40 ELSE NEX
T:ti=ti-5:PRINT#1,INT(ti/10):RETURN
95 'IF bl=0 THEN FOR i=1 TO a:PRINT#2,sc+i;:PRINT#1,a-i:SOUN
D 1,i*10,0.5,5:NEXT:sc=sc+INT(ti/10):le=le+1:PEN 7:LOCATE 5,
10:PRINT"PRESS  SPACE":WHILE INKEY$<>" ":WEND:LOCATE 5,10:PR
INT SPACE$(12);:GOTO 40 ELSE NEXT:ti=ti-5:PRINT#1,INT(ti/10)
:RETURN
100 SOUND 1,1000,30,7:PEN 8:LOCATE 7,8:PRINT "TIME OUT":FOR
K=1 TO 1000:NEXT:PEN 4:LOCATE 3,10:PRINT"FINAL SCORE-";sc;:P
EN 6:LOCATE 5,12:PRINT"ON LEVEL-";le;:PEN 7:LOCATE 5,14:PRIN
T"PRESS  SPACE":WHILE INKEY$<>" ":WEND:LOCATE 5,10:PRINT SPA
CE$(12);:RUN
```

RESET

BY RUSSELL WHITWELL

Want to play a joke on a friend? Try this one for size and simply alter the words in line 70 to suit the occasion. As it says, it is harmless, and quite a laugh as well.



```
10 POKE &BDEE,&C9:CALL &BC02:PEN 1:PAPER 0:BORDER 1:MODE 1:P
RINT CHR$(10)" Amstrad 128K Microcomputer  (v3)":PRINT:PRINT
" "CHR$(164)"1985 Amstrad Consumer Electronics plc"SPC(12)"a
nd Locomotive Software Ltd.":PRINT:PRINT" BASIC 1.1":PRINT

20 mk=0:PRINT"Ready":EVERY 1,1 GOSUB 100
30 INPUT"",a$:IF a$="" THEN 30
40 IF UPPER$(a$)="RUN"+CHR$(34) OR UPPER$(a$)="LOAD"+CHR$(34
) THEN mk=1:GOTO 100
50 a$=a$+"    ":a$=LEFT$(a$,4)
60 IF UPPER$(a$)<>"CAT " AND UPPER$(a$)<>"LOAD" AND UPPER$(a
$)<>"SAVE" AND UPPER$(a$)<>"RUN " AND UPPER$(a$)<>"" AND UPP
ER$(a$)<>"RUN"+CHR$(34) AND UPPER$(a$)<>"LOAD"+CHR$(34) AND
UPPER$(a$)<>"|DIR" THEN 80 ELSE 70
70 MODE 2:LOCATE 1,12:PRINT"Gotcha!You have been tricked by
Russell Whitwell`s RESET program!Really,it pretends it is a
 naff  program  that just resets,BUT A good trick to play on
 your friends.It has us fooled too!(And it's harmless!)":END
80 FOR C=1 TO LEN(A$):IF ASC(LEFT$(A$,C))<32 THEN NEXT:GOTO
20 ELSE C=1:GOTO 90
90 PRINT"Syntax error":GOTO 20
100 IF mk=1 THEN PRINT CHR$(10)"Bad command":GOTO 20 ELSE IF
 INKEY(66)=160 THEN RUN 10 ELSE RETURN
```

CHARACTERS

BY ROBIN GILBERT

Fancy creating your own character set? Well boot up this little gem and get designing. Featuring save, load, alter and clear grid, you can now modify characters 32-255 at a flick. Pressing 'e' can get you out of a fix in this excellent little proggie.



```
1 ' Character Set Designer by Robin Gilbert.
2 ' (C) Copyright 1990
3 '
10 MODE 1:INK 0,0:BORDER 0:INK 1,17:INK 2,14:INK 3,26:c=33:S
YMBOL AFTER 32:SYMBOL 144,128,128,128,128,128,128,128,255:q$
(1)="Save":q$(2)="Load":base=40956
20 CLS:PEN 2:FOR f=32 TO 255:PRINT CHR$(f);:NEXT:PRINT:PEN 1
:PRINT STRING$(40,154):FOR g=48 TO 496 STEP 208:FOR f=0 TO 8
:MOVE g+f*16,144:DRAWR 0,128:MOVE g,144+f*16:DRAWR 128,0:NEX
T f,g:LOCATE 1,20:PRINT STRING$(40,154):GOSUB 100
30 ky=0:IF INKEY(8)<>-1 AND c>32 THEN ky=5:c=c-1 ELSE IF INK
EY(1)<>-1 AND c<255 THEN ky=5:c=c+1 ELSE IF INKEY(60)<>-1 TH
EN ky=1 ELSE IF INKEY(36)<>-1 THEN ky=2 ELSE IF INKEY(62)<>-
1 THEN ky=3 ELSE IF INKEY(69)<>-1 THEN ky=4
40 IF ky=0 THEN 30 ELSE IF ky=5 THEN GOSUB 100:GOTO 30 ELSE
IF ky<3 THEN PEN 2:CLS:CAT:PRINT:CLEAR INPUT:PRINT"Enter ";q
$(ky);" filename [8]: ";:INPUT "",f$:f$=MID$(f$,1,8)+".set":
PEN 3:PRINT:PRINT q$(ky);"ing ";f$
50 st=1:x=0:y=0:IF ky=1 THEN SAVE f$,b,base,1784:GOTO 20 ELS
E IF ky=2 THEN LOAD f$:GOTO 20 ELSE IF ky=3 THEN FOR f=0 TO
7:POKE (base+f+((c-32)*8)),0:NEXT:GOSUB 90
60 ky=0:LOCATE 17+x,9+y:PRINT CHR$(143+st):IF INKEY(8)<>-1 A
ND x>0 THEN x=x-1:ky=1 ELSE IF INKEY(1)<>-1 AND x<7 THEN x=x
+1:ky=2 ELSE IF INKEY(0)<>-1 AND y>0 THEN y=y-1:ky=3 ELSE IF
 INKEY(2)<>-1 AND y<7 THEN y=y+1:ky=4 ELSE IF INKEY(47)<>-1
THEN ky=6
70 z=TIME:WHILE TIME<z+20:WEND:IF INKEY(58)<>-1 THEN ky=5 EL
SE IF ky=0 THEN LOCATE 17+x,9+y:PRINT CHR$(233);CHR$(8);MID$
(r$(x),y+1,1);:GOTO 60 ELSE IF ky=6 AND st=0 THEN st=1 ELSE
IF ky=6 AND st=1 THEN st=0 ELSE IF ky=5 THEN 20
80 MID$(r$(y),x+1,1)=CHR$(143+st):IF ky<>5 THEN 60 ELSE FOR
f=0 TO 7:t=0:m=1:FOR g=0 TO 7:t=t+m*(144-ASC(MID$(r$(f),g+1,
1))):m=m*2:NEXT:POKE base+f+((c-32)*8),t:NEXT f:GOTO 20
90 PEN 1:FOR f=0 TO 7:a$=BIN$(PEEK(base+f+(d*8)),8):r$(f)=""
:FOR g=1 TO 8:r$(f)=r$(f)+CHR$(144-(VAL(MID$(a$,g,1)))):NEXT
:LOCATE p-3,9+f:PRINT HEX$(PEEK(base+f+d*8),2):LOCATE p,9+f:
PRINT r$(f):NEXT:LOCATE p+2,18:PRINT d+32:RETURN
100 LOCATE 1,25:PRINT"Okay.";STRING$(16,32):d=c-31:p=30:GOSU
B 90:d=c-33:p=4:GOSUB 90:d=c-32:p=17:GOSUB 90:PEN 3:LOCATE 1
,22:PRINT"[S]ave","[L]oad","[C]lear","[A]lter",,,,,,"Choose
using cursor. SPACE=Ink On/Off":RETURN
```

WATERWAY

BY B. FRETWELL

Here's an excellent graphics demo for you to incorporate into your own proggies. Watch as the picturesque scenery appears and then see the watersports in action on the river. Nice work.

```
5 ' WATERWAY by B.FRETWELL '91
10 MODE 1:INK 1,9:INK 2,11:INK 3,0:INK 0,14:PAPER 0:CLS:DEG:
FOR i=200 TO 400 STEP 2:PLOT 0,i,2:DRAW 640,i,2:NEXT:FOR i=0
 TO 10:PLOT 220,225+i,3:DRAW 420,235-i,3:PLOT 220,176-i,2:DR
AW 420,166+i,2:NEXT:FOR i=0 TO 6 STEP 2:PLOT 250+i,230,3:DRA
W 290+i,250,3
20 DRAW 290+i,200,3:PLOT 390-i,230,3:DRAW 350-i,250,3:DRAW 3
50-i,200,3:PLOT 290+i,250,3:DRAW 350-i,230,3:PLOT 350-i,250,
3:DRAW 290+i,230,3:PLOT 250+i,170,2:DRAW 290+i,150,2:DRAW 29
0+i,198,2:PLOT 390-i,170,2:DRAW 350-i,150,2:DRAW 350-i,198,2
30 PLOT 290+i,150:DRAW 350-i,170:PLOT 350-i,150:DRAW 290+i,1
70:NEXT:FOR i=0 TO 640 STEP 2:PLOT i,0:DRAWR 0,10+(RND*4)-2,
3:DRAWR RND*4,RND*4,1:NEXT:FOR i=0 TO 320 STEP 2:PLOT i*2,15
0+(COS(i*2+40)*50),3:DRAW i*2,198,2:PLOT i*2+2,150+(COS(i*2+
40)*50),3
40 DRAW i*2+2,198,3:PLOT i,250-(COS(i+40)*50),1:DRAW i,200,1
:PLOT 640-i,250-(COS(i+40)*(50+r)):DRAW 640-i,200:NEXT:SYMBO
L AFTER 199:SYMBOL 200,0,3,0,7,3,2,3,3:SYMBOL 201,128,192,12
8,240,224,224,232,232:SYMBOL 202,255,127,63,63,31,31,15,7
50 SYMBOL 203,254,254,254,254,252,252,252,248:SYMBOL 206,63,
0,1,35,63,1,0,7:SYMBOL 207,255,192,248,246,255,254,133,254:I
NK 0,14:FOR i=640 TO 320 STEP -2:PLOT -2,-2,2:TAG:MOVE i+32,
66:PRINT CHR$(200);CHR$(201);:MOVE i,50:PRINT CHR$(202);CHR$
(143);
60 PRINT CHR$(143);CHR$(143);CHR$(203);:PLOT -2,-2,3:MOVE 64
0-i,96:PRINT CHR$(206);CHR$(207);:MOVE 640-i,96:DRAWR 30,0,0
:NEXT:FOR i=96 TO 66 STEP -1:PLOT -2,-2,3:CALL &BD19:MOVE 32
0,i:PRINT CHR$(206);CHR$(207);:CALL &BD19:MOVE 320,i:DRAWR 3
0,0,0:NEXT
70 FOR i=1 TO 1000:NEXT:FOR i=68 TO 96:PLOT -2,-2,3:CALL &BD
19:MOVE 320,i:PRINT CHR$(206);CHR$(207);:CALL &BD19:MOVE 320
,i:DRAWR 30,0,0:MOVE 320,i-16:DRAWR 30,0,0:NEXT:FOR i=320 TO
 720 STEP 2:PLOT -2,-2,3:MOVE i,96
80 PRINT CHR$(206);CHR$(207);:MOVE i,96:DRAWR 30,0,0:PLOT -2
,-2,2:MOVE 640-i,66:PRINT "  ";CHR$(200);CHR$(201);:MOVE 640
-i,50:PRINT CHR$(202);CHR$(143);CHR$(143);CHR$(143);CHR$(203
);:NEXT:l=60:k=-0.5
90 SYMBOL 204,0,48,48,60,32,16,126:SYMBOL 205,0,24,12,126,12
6,124,60:FOR i=0 TO 670 STEP 2:PLOT 0,0,3:l=l-k:MOVE i,70:PR
INT CHR$(205);:MOVE i,62:DRAW i-16,l+14:MOVE i-26,l+20:PRINT
 CHR$(204);:MOVE i,62:DRAW i-16,l+14,0:IF INT(i/80)=i/80 THE
N k=-k
100 NEXT:TAGOFF:PAPER 0:PEN 3:LOCATE 15,22:PRINT"PRESS  SPAC
E":WHILE INKEY$<>" ":WEND:LOCATE 15,22:PRINT"              ":G
OTO 50
```



METROPOLIS

BY DAVID HALL

Just a quickie from Mr Hall this month, though it's not a bad effort at all. Run it and sit back as the 3D skyline appears before your eyes.



```
1 ' METROPOLIS a 10-LINER by David Hall
2 ' .. assisted by WENDY "I want all the money if this gets
printed!" HOLLOWAY
3 '
10 BORDER 0:INK 0,0:INK 1,14:INK 2,2:INK 3,23:PAPER 0:MODE 1
:CLS
20 PEN 2:LOCATE 2,2:PRINT "mEtRoPoLiS":LOCATE 30,24:PRINT "3
-D MaP"
30 FOR i=1 TO 8:m=340-i*20:FOR l=250+i*20 TO 100+i*20 STEP -
20:MOVE l,m:m=m-20
40 IF RND*10>7 THEN a=1:c=2 ELSE a=(RND*7)+2:c=3
50 GOSUB 60:NEXT l,i:WHILE INKEY$="":WEND:RUN
60 FOR z=0 TO a:FOR u=20 TO 2 STEP -2:h=2:IF u=20 AND c=3 TH
EN h=3 ELSE IF u<>20 AND c=3 THEN h=1
70 DRAWR u,u,h:DRAWR u,-u:DRAWR -u,-u:DRAWR -u,u:MOVER 2,0:N
EXT:MOVER -20,-2:FOR j=1 TO 2:DRAWR 20,-20,1:DRAWR 20,20,3:M
OVER -40,-2:NEXT
80 IF z>1 THEN DRAWR 0,6:MOVER 0,8 ELSE MOVER 0,14
90 NEXT:RETURN
```

CITIZEN

ALWAYS A GOOD IDEA

DOT MATRIX & NOTEBOOK PRINTERS

Silica presents some great offers on the award winning range of high quality matrix printers from Citizen. Each Citizen printer is built in the UK to exacting standards, ensuring superb reliability and output. Our confidence in Citizen's quality is such that we are pleased to include a 2 year guarantee with every printer. Plus, if you buy a Citizen printer from us, we will give you the Silica Systems Printer Starter Kit (worth £29.38), FREE OF CHARGE!

FREE DELIVERY
Next Day - Anywhere in the UK mainland

FREE STARTER KIT
Worth £29.38 - With every Citizen printer from Silica.

2 YEAR WARRANTY
Silica offer a 2 year warranty (including the printer head) with every Citizen printer from Silica.

WINDOWS 3.0
Free Windows 3.0 driver. Included with the Silica Starter Kit.

FREE COLOUR KIT
With every Swift 9 and Swift 24e printer.

FREE HELPLINE
Technical support helpline open during office hours.

MADE IN THE UK
Citizen printers are manufactured to high standards.

NEW! LOW PRICE



9 PIN PRINTER

144 CPS **80** COLUMN

- Citizen 120D+ - 9 pin - 80 column
- 144cps Draft, 30cps NLQ
- 4K Printer Buffer + 2 Fonts
- Parallel Interface as Standard
- Graphics Resolution: 240×240dpi
- Epson and IBM Emulation
- Pull tractor & bottom feed
- FREE Silica Printer Starter Kit

RRP: £199
STARTER KIT £25
TOTAL RRP: £224
SAVING: £109
SILICA PRICE: £115

SERIAL INTERFACE OPTION
The 120D printer is available with a serial interface for £115+VAT. Ref: PRI 2125 - £135.13 inc VAT.

£115
+VAT=£135.13 ref: PRI 2120

9 PIN PRINTERS



192 CPS **80** COLUMN

- Citizen Swift 9 - 9 pin - 80 column
- 192cps Draft, 48cps NLQ
- 8K Printer Buffer + 3 Fonts
- Parallel Interface
- Graphics Resolution: 240×240dpi
- Epson and IBM Emulation
- FREE Colour Kit
- FREE Silica Printer Starter Kit

RRP: £239
COLOUR KIT £38
STARTER KIT £25
TOTAL RRP: £302
SAVING: £123
SILICA PRICE: £179

£179
+VAT=£222.08 ref: PRI 2209



Colour Option Extra - See Accessories

192 CPS **136** COLUMN

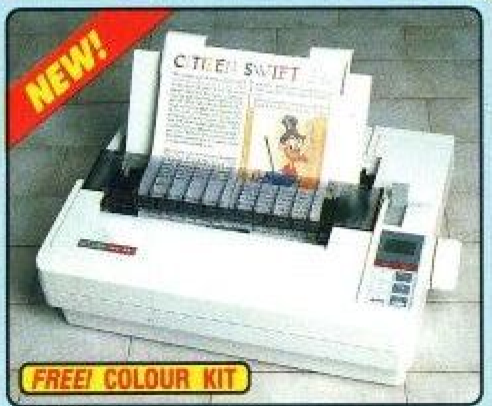
- Citizen Swift 9x - 9 pin - 136 column
- 192cps Draft, 48cps NLQ
- 8K Printer Buffer + 3 Fonts
- Parallel Interface
- Graphics Resolution: 240×240dpi
- Epson and IBM Emulation
- A3 landscape printing
- FREE Silica Printer Starter Kit

RRP: £329
STARTER KIT £25
TOTAL RRP: £354
SAVING: £105
SILICA PRICE: £249

£249
+VAT=£292.58 ref: PRI 2309

24 PIN PRINTERS

NEW!



216 CPS **80** COLUMN

- Citizen Swift 24e - 24 pin - 80 column
- 216cps Draft, 72cps LQ
- 8K Printer Buffer + 6 Fonts
- Parallel Interface
- Graphics Resolution: 360×360dpi
- Epson, IBM & NEC P6+ Emulation
- FREE Colour Kit
- FREE Silica Printer Starter Kit

RRP: £365
COLOUR KIT £38
STARTER KIT £25
TOTAL RRP: £428
SAVING: £169
SILICA PRICE: £259

£259
+VAT=£304.33 ref: PRI 2534

NEW!



Colour Option Extra - See Accessories

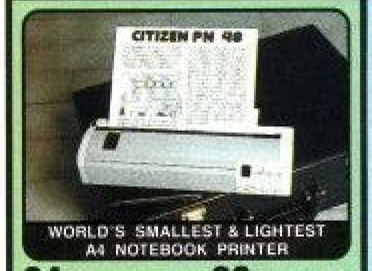
192 CPS **80** COLUMN

- Citizen 224 - 24 pin - 80 column
- 192cps Draft, 64cps LQ
- 8K Printer Buffer + 2 Fonts
- Parallel Interface
- Graphics Resolution: 360×360dpi
- Epson and IBM Emulation
- Colour Option Available
- FREE Silica Printer Starter Kit

RRP: £269
STARTER KIT £25
TOTAL RRP: £294
SAVING: £95
SILICA PRICE: £199

£199
+VAT=£233.83 ref: PRI 2484

NOTEBOOK PRINTER



WORLD'S SMALLEST & LIGHTEST A4 NOTEBOOK PRINTER

64 CPS **80** COLUMN

- Citizen PN48 Notebook Printer
- Non-impact Printing On Plain Paper
- LASER QUALITY - 64cps
- 4K Printer Buffer + 2 Fonts
- Rear and Bottom Paper Loading
- Parallel Interface
- Graphics Resolution: 360×360dpi
- Epson, IBM, NEC P6 & Citizen Emulations
- Power: Mains, Battery or Car Adaptor
- FREE Silica Printer Starter Kit

RRP: £325
STARTER KIT £25
TOTAL RRP: £350
SAVING: £101
SILICA PRICE: £249

£249
+VAT=£292.58 ref: PRI 2100

24 PIN PRINTER



Colour Option Extra - See Accessories

192 CPS **136** COLUMN

- Citizen Swift 24x - 24 pin - 136 column
- 192cps Draft, 64cps LQ
- 8K Printer Buffer + 4 Fonts
- Parallel Interface
- Graphics Resolution: 360×360dpi
- Epson, IBM and NEC P6 Emulation
- A3 landscape printing - FREE Colour Kit
- FREE Silica Printer Starter Kit

RRP: £489
STARTER KIT £25
TOTAL RRP: £514
SAVING: £165
SILICA PRICE: £349

£349
+VAT=£410.08 ref: PRI 2574

24 PIN PRINTER

GOLD AWARD
Best Budget Printer 1990
Micro Decision

144 CPS
80 COLUMN

- Citizen 124D - 24 pin - 80 col
- 144cps Draft, 48cps LQ
- 8K Printer Buffer + 2 Fonts
- Parallel Interface
- Graphics Res: 360×360dpi
- Epson and IBM Emulation
- FREE Silica Printer Starter Kit



RRP: £249
STARTER KIT £25
TOTAL RRP: £274
SAVING: £105
SILICA PRICE: £169

£169
+VAT=£198.58 ref: PRI 2534

ACCESSORIES

SHEET FEEDERS

PRA 1200	120D		£71.38
PRA 1215	124D/224 Sw9/24/24e		£88.70
PRA 1228	124D/224 Sw9/24/24e		£42.00

SERIAL INTERFACES

PRA 1189	120D+		£56.45
PRA 1209	124D/224 Swift 9		£32.25
PRA 1709	Swift 24/24e		£26.38

32K MEMORY EXPN

PRA 1753	124D/224 Swift 24/24e		£13.10

PRINTER STAND

PRA 1242	124D/224 Sw9/24/24e		£24.03
PRA 1274	Swift 9x/24x		£30.66

ORIGINAL RIBBONS

RIB 3520	120D/Swift 9 Black		£2.91
RIB 3949	Swift 9x Black		£7.15
RIB 3924	124D/224 Sw24/24e Black		£4.20
RIB 3936	Swift 9/24/24e Colour		£15.63
RIB 3248	PN48 Single Strike		£3.61
RIB 3348	PN48 Multi Strike		£3.61

COLOUR KITS

PRA 1236	Swift 9/24/24e		£35.25
PRA 1240	Swift 9x/24x		£35.25

PN48 ACCESSORIES

PRA 1148	PN48 Battery		£51.70
PRA 1155	PN48 Cable Extn		£ TBC
PRA 1162	PN48 Car Adapter		£ TBC

All prices include VAT and Free delivery.

STARTER KIT

FREE!

Worth: £25 +VAT=£29.38

To get you up and running with your new printer from Silica:

- 3½" Disk - Amiga & ST Drivers
- 3½" Disk - Drivers for Windows 3
- 2 Metre Parallel Printer Cable
- 200 Sheets of Continuous Paper
- 100 Continuous Address Labels
- 5 Continuous Envelopes

If you already own a printer, and would like to buy a kit, you may order one (ref: KIT 5500) for £24.95 - £5 off RRP!



SILICA SYSTEMS OFFER YOU

- **FREE OVERNIGHT DELIVERY:** On all hardware orders shipped in the UK mainland.
- **TECHNICAL SUPPORT HELPLINE:** Team of technical experts at your service.
- **PRICE MATCH:** We normally match competitors on a "Same product - Same price" basis.
- **ESTABLISHED 12 YEARS:** Proven track record in professional computer sales.
- **BUSINESS + EDUCATION + GOVERNMENT:** Volume discounts available for large orders.
- **SHOWROOMS:** Demonstration and training facilities at our London & Sidcup branches.
- **THE FULL STOCK RANGE:** All of your requirements from one supplier.
- **FREE CATALOGUES:** Will be mailed to you with offers and software/peripheral details.
- **PAYMENT:** By cash, cheque and all major credit cards.

Before you decide when to buy your new printer, we suggest you think very carefully about WHERE you buy it. Consider what it will be like a few months after you have made your purchase, when you may require additional peripherals or software, or help and advice. And, will the company you buy from contact you with details of new products? At Silica Systems, we ensure that you will have nothing to worry about. We have been established for over 12 years and, with our unrivalled experience and expertise, we can now claim to meet our customers requirements with an understanding which is second to none. But don't just take our word for it. Complete and return the coupon now for our latest Free literature and begin to experience the "Silica Systems Service".

MAIL ORDER HOTLINE 081-309 1111

SILICA SYSTEMS

MAIL ORDER:	1-4 The Mews, Hatherley Rd, Sidcup, Kent, DA14 4DX		**Tel: 081-309 1111**
Order Lines Open:	Mon-Sat 9.00am-6.00pm	No Late Night Opening	Fax No: 081-308 0608
LONDON SHOP:	52 Tottenham Court Road, London, W1P 0BA		**Tel: 071-580 4000**
Opening Hours:	Mon-Sat 9.30am-6.00pm	No Late Night Opening	Fax No: 071-323 4737
LONDON SHOP:	Selfridges (1st Floor), Oxford Street, London, W1A 1AB		**Tel: 071-629 1234**
Opening Hours:	Mon-Sat 9.30am-6.00pm	Late Night: Thursday until 8pm	Extension: 3914
SIDCUP SHOP:	1-4 The Mews, Hatherley Rd, Sidcup, Kent, DA14 4DX		**Tel: 081-302 8811**
Opening Hours:	Mon-Sat 9.00am-5.30pm	Late Night: Friday until 7pm	Fax No: 081-309 0017

To: Silica Systems, Dept AMSCU-0392-55, 1-4 The Mews, Hatherley Rd, Sidcup, Kent, DA14 4DX

PLEASE SEND A CITIZEN COLOUR CATALOGUE

Mr/Mrs/Ms: .... Initials: .... Surname: ....

Address: ....

....

.... Postcode: ....

Tel (Home): .... Tel (Work): ....

Company Name (if applicable): ....

Which computer(s), if any, do you own? 55D

E&OE - Advertised prices and specifications may change - Please return the coupon for the latest information.



THE DUNGEON MASTER

DM gets a little sentimental before recovering his poise for the gritty stuff.

I hope that by the time you are reading this, our good friend Joan Pancott will have returned home and be feeling well and hearty but, as I write this, she is in hospital and rather poorly. So get well soon Joan and we all hope that you will shortly be running your famous helpline and guiding all us lost adventurers once again. WoW Software is in the capable but extremely busy hands of Joan's husband Maurice, so please try to be a little patient if any longer delays than usual occur with your orders.

REVIEWS

Axe of Kolt by Larry Horsfield. Disc £8. Available by mail order from FSF Adventures, 40 Harvey Gardens, Charlton, London SE7 8AJ.

Your name is Alaric Blackmoon! Don't blame me, blame Larry Horsfield, as that is who he has decided you will be during the playing of his latest four-part epic. This game first came out on the Spectrum last year but now Amstrad owners can join in the fun and learn why Mr Horsfield has earned himself a reputation as an author of some repute, including an award from Adventure Probe for this game as 'Best 8 bit Text Adventure of 1991.'

Axe of Kolt has been written using the PAW utility to great effect. After reading the loading screens, which tell you a lot of useful information about how to interact with the game, you are plunged into the adventure only being told that you are a penniless wanderer who was once a fabled swordsman, but who has now fallen on hard times. You arrive at a town called Hengemire. . . That's all you're told and the rest is up to you to find out.

Axe of Kolt is big. Four full parts which load independently – the smallest of which is still 50K long, so unexpanded 464s will be unable to play this game I believe. A whole mass of puzzles, traps and downright deviousness awaits you but the storyline is strong enough to make you want to keep coming back for more. There is also a fair amount of humour to keep you amused as well. I do not mean that this is a comedy - far from it - but there is some gentle leg-pulling from the author, when you either do something wrong or examine certain items of scenery that are not essential to the plot.

There is a very detailed scoring system which awards 5 points for every correct action taken. When I tell you that a perfect final score would be 1500 points, you can see that you've got a lot to do before you'll be able to complete this game. How this guy invents and writes such large games is beyond me but I'm mighty glad that he does.

Do I have any quibbles? Well yes, just one. I like to take my time when playing an adventure and fully study the text, think long and hard about my next input and I expect the adventure to just sit there and wait for me. In other words, I hate 'interactive' situations where if you do not type something in, the game 'makes' a move and completely destroys what you were planning to do. This crops up at the beginning of part four and personally I was a bit annoyed with it. I know that PAW supports RamSave but I still would have been happier for 'Axe' not to have used this time-out gimmick.

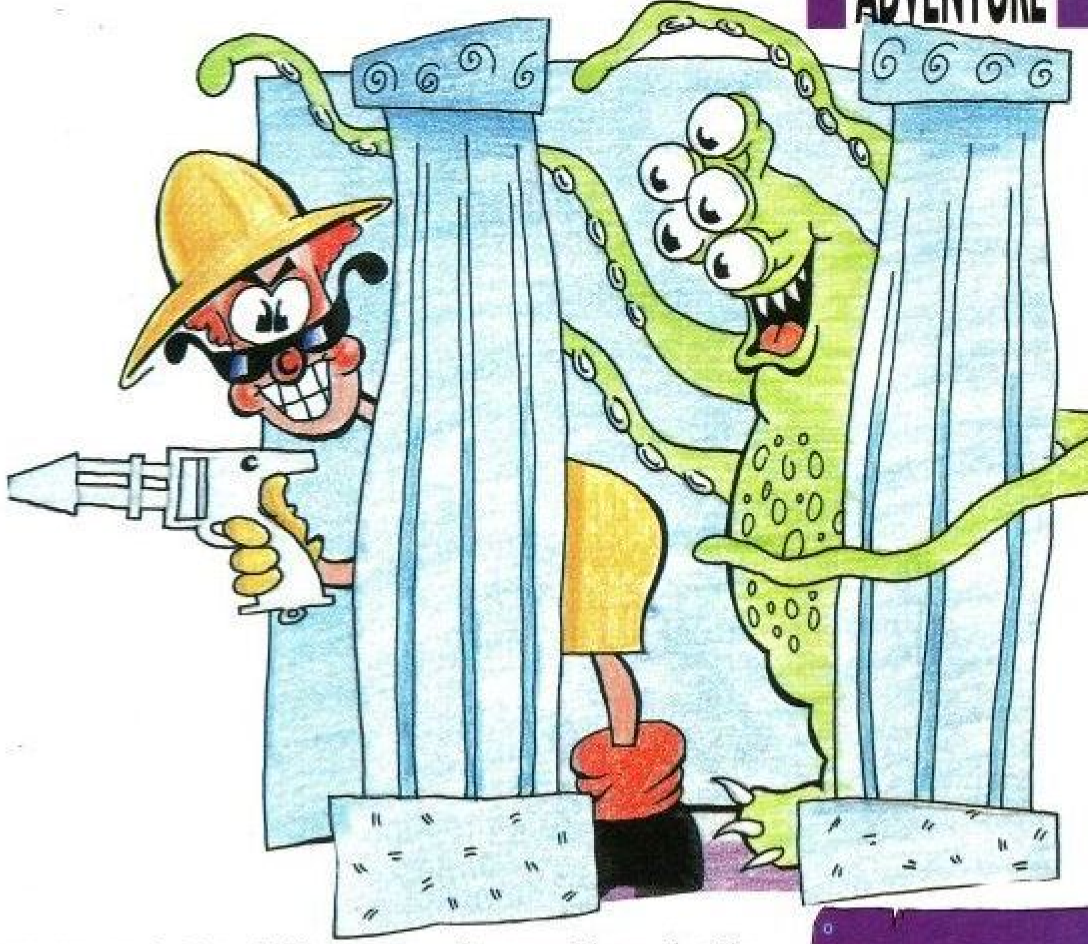
As that was my only complaint I can easily forgive the author this one blemish on an otherwise very fine adventure. This game is hereby awarded the Dungeon Master's Seal of approval.

Another adventure that I've been enjoying recently is *The Angelicus Saga*, a two-part text and graphic adventure by Margaret and Mike Crewdson. Available from WoW Software, 78 Radipole Lane, Weymouth, Dorset DT4

9RS. £3 Tape & £5 Disc. Written using GAC, text-only freaks will be pleased to hear that the graphics can be turned off. In contrast to 'Axe' above, you get a bit more background information before you start this adventure. Angelicus, a prosperous Planet, has been invaded by space Pirates. Although the Pirates have been defeated in battle, they managed to steal and hide a valuable scroll. This scroll is the lifeline of Angelicus - it contains all the history and information which makes Angelicus so prosperous. The council cannot function properly without it. (They cannot collect the Poll Tax?)

In this adventure you play the part of Gamaluchad, (I take back everything I said about Alaric Blackmoon above!) a member of the Angelicus army. In the first part your quest is to find the scroll which, rumour has it, is still somewhere on Angelicus. In the second part, your mission is to find the Pirates on Scully, the Planet where their Captain has his headquarters (and PD library?) and bring them back to justice.

There is a lot of searching to do in the first part and do remember to explore everywhere. Part two requires rather more brain than finger exercise before you are allowed to claim victory. However, in the best traditions of a continuing saga, you do not capture the Pirate Captain and this leads us nicely onto the follow-up adventure - *The Angelicus Answer* - which has just been released. Stay tuned to this station for the next thrilling instalment.



SCROLLS OF WISDOM

Dave Harvard
Mrs Harvard

HINTS & TIPS

Dave Harvard (and his wife) are the people to thank for this month's tips on yet another of their favourite Infocom games.

HOLLYWOOD HI-JINX

1. To Enter House: At South Junction, turn Buck west, turn Buck east, turn Buck north. (Refer to rear of photo of Uncle Buddy, note directions given in rhyme.)

2. The Maze: it IS mappable, without any objects taken to drop (the standard procedure). Use ordinary squared paper - the school maths book type, not graph paper. Each square will be 10', mark directions with small arrows, draw in hedges along lines as necessary. Note that the centre is not marked, but is one of few dead ends. This is the method my wife and I used when we couldn't get into the house. (We were hoping to find the key in the centre.) To make life inherently easier however, get the yellowed paper from the mailbox and the thin paper from the dining room, and Put Thin Paper Onto Yellowed Paper. This gives you an effective map. The entrance is on the southerly edge near the centre.

3. The Closet: The closet is in fact a lift. By pulling various pegs the closet can be raised or lowered to different floors. In this way you can get upstairs for the first time and 'set' the stairs for future use. You will eventually get a peg for the left-hand slot.

4. Order: There is no set order for finding the ten 'treasures', but I would advise opening the safe in the house before attempting the safe in a sheltered position. Excuse my waxing lyrical, but this combination is the safest as you may see.

5. General Notes: This is Infocom at their logical best. Some of the problems are difficult at first but when you realise the solution, you can see that if you were 'there', you would do exactly what is required. Just because you have found the ten treasures, don't think it is all over. This has to be an even better 'End Game' than Level Nine's version of Colossal Caves.

6. Humour: It abounds everywhere. Apart from reading various historical accounts of your past, there is also the madcap jaunt around downtown Tokyo, guiding a mutant 'rat'. For me though, the best humour was found by running the film treasure through the projector.

7. The BIG Tip: Make absolutely sure that when you enter the maze you have the means to get the treasure from the centre. It does take a long time to reach the centre, (and to get out again), and it's enough to put you off the whole thing when you have to do it all over again!

Thanks Dave (and Mrs Dave). Well, I hope that I've covered your particular problem in the above selection but if not, you should know by now what you need to do. Just write in and tell me the title of the game and where you are stuck. Then as if by magic, the answer will appear in these pages.

MY LAMP WON'T WORK DEPARTMENT

A cry of HELP ME! has reached us from Northern Ireland. Nicholas Campbell from Killinchy is having trouble with *Necris Dome*. He asks, '1). How on earth do you disable the Mandroids? 2). Every time I type in - Wear Thermo Plas Suit - the computer answers - How? I've tried every verb I can think of when I'm in the room. Can somebody out there help me? 3). How do you deactivate the re-energiser pods? You can't pick them up and take them to Chamber 9 of the reception level.' So if anybody has played and completed *Necris Dome* and knows these answers, then please write to me and I'll try and put Nicholas out of his misery. Aren't adventures fun?

Until next month, happy adventuring.

Please send all correspondence, hints and tips, complaints, money, etc to: The Dungeon Master, C/o Amstrad Computer User, Sunnyside Cottage, Carluddon, St Austell, Cornwall PL26 8TY.

COMPLETE CONTROL

More power to your cheating elbow with this month's superb cheat finder routine.

Wow! Have we got some goodies for you this month! Sit back, read on and then dash off to your Arnold and punch in some of these goodies!

First up this month, I received a particulatly sweet missive from a Mr Stephen Matthews recently, which was jam-packed with all sorts of goodies, not the least of which was a pretty smart list of multiface pokes for those with the relevant hardware. Without further ado, let's get started.

GAME	ADDRESS	POKE	EFFECT
Green Beret	&2507	00	Infinite lives (tape)
Kung Fu Master	&6A25	FF	255 lives (tape)
Cybernoid	&0227	FF	255 lives (tape)
Gryzor	&10DD	00	Never die (tape)
Turbo Outrun	&15ED	00	Infinite credits (tape)
Space Harrier 2	&1003	00	100 lives (tape)
Marauder	&030E	FE	254 lives (tape)
"	&0309	FE	254 Smart bombs (tape)
Dizzy	&751C	00	Never die (tape)
Super Trux	&9991	00	No clock (tape)
" "	&9961	00	" "
Twin Turbo V8	&81BB	00	No Corners (tape)
Wonderboy	&616D	00	Infinite lives (tape)
Manic Miner	&6E5C	00	Infinite lives (tape)
Ghosts 'n' Goblins	&5096	C8	Press ESC to move level
Commando	&14C0	00	Inf. lives and grenades
Indiana Jones (TOD)	&9916	00	Infinite lives (tape)
Herbert's Dummy Run	&0204	00	Infinite lives (tape)
Target Renegade	&04CE	00	Infinite lives (tape)
" "	&1F2A	00	" "
" "	&0F3E	00	Infinite time (tape)
Miami Cobra GT	&C7C8	00	Infinite time (tape)
Project Future	&9564	FF	255 lives (tape)
" "	&9B9D	FF	" "
Spitfire	&1B2A	00	Infinite lives (tape)
Shinobi	&15B7	65	100 lives (tape)
"	&1407	00	Infinite magic (tape)
Ironman	&8913	00	Infinite credits if you lose a race

Phew, stick that little lot up your keyboard and watch it smoke! Moving along, Stephen has also sent in a couple of handy keypress pokes for your perusal. Anybody into wheelies and handlebar spins should type TAEHC into the name table at the start of BMX Freestyle.

Those of you who prefer the four wheeled outings, should enjoy pressing CONTROL to move on to the next track in Turbo Kart Racer, and absolutely relish redefining the keys as CHEAT and pressing SPACE on Continental Circus. Do it right and the screen border should change colour. Now start the game and pressing C will give you as many credits as you like.

Finally, we move on to Mr Matthews' masterpiece, which just happens to be an excellent little routine called *Cheat Finder*. Why? Because that is exactly what it does.

Take a look over this excellent program and type it in exactly as it is. Run it and the first thing you should do is load a binary file (a game file, not multiface, unless it has been decompressed). Then, just select either 1. to search for 3D ,32.Select 2. to search for 35 (DEC HL), or select 3. to search for D6,01.

The program will also search for CALL &BB1E, which should pick up any possible keypress cheats, so you can't say that it doesn't cover virtually every aspect.

Well, what with the proggie and all, I don't think we have too much space left this month, although we could just squeeze in a couple of handy hints for the ground level of *Castle Master,* for those that don't know them already.

For example, that old horse in the stable is not a real one, so climb inside and enjoy the ride. If you don't kill off the spirit in the hospital, how can you expect to get well?

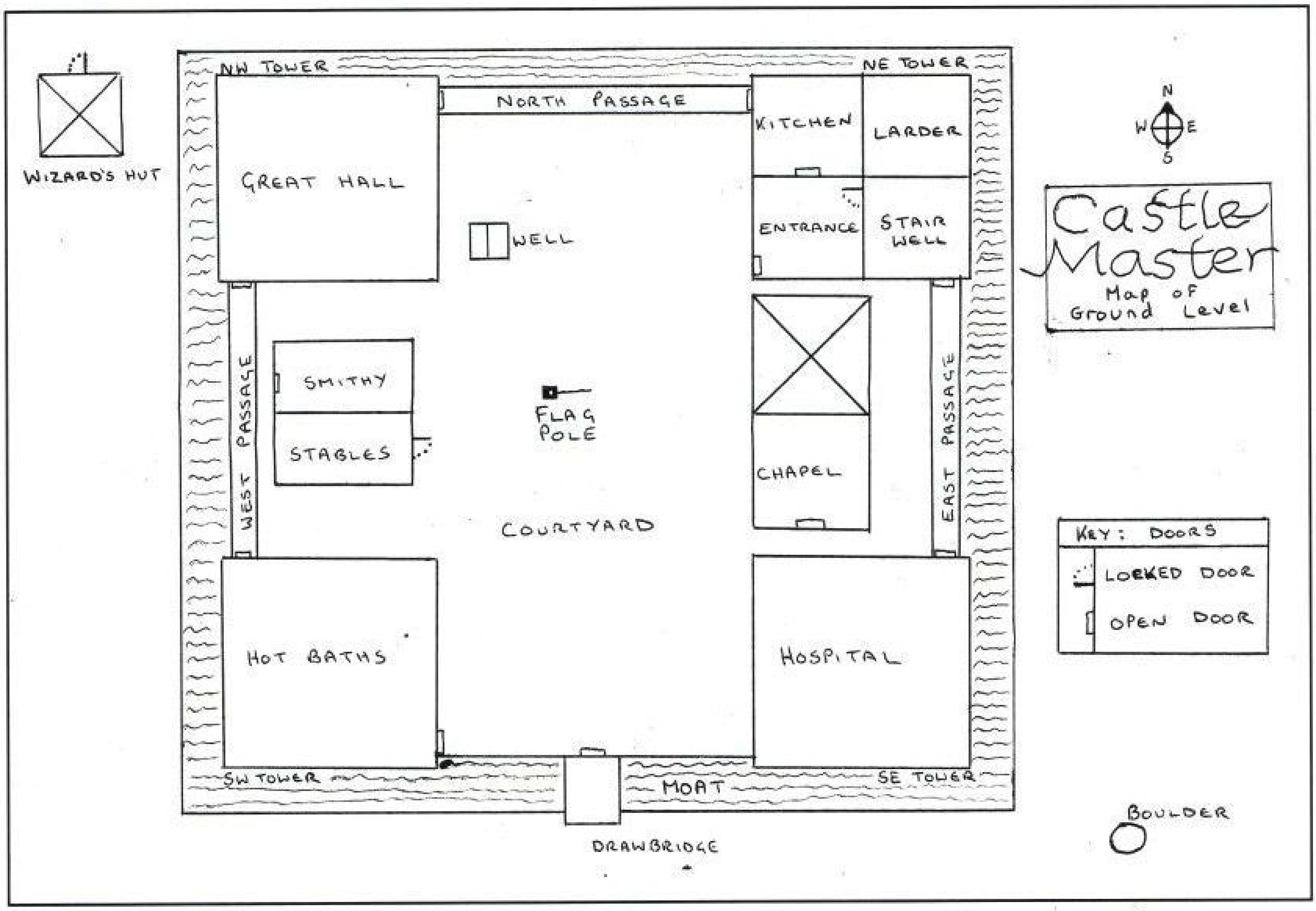
To go up in the world, you must first kill off the spirit in the Entrance lobby and take a look at what it was guarding. Always look behind paintings for clues and examine the well and flagpole carefully.

That Smithy's lunch looks appetising. Try it, you might like it! Also, a 'grate' place to hide should be found in the Great Hall, after you have destroyed the spirit.

Finally, if you haven't even worked out how to get into the castle yet, what have you been doing? Try the clue hanging outside the wizard's hut to find the answer, but don't forget to hunt around inside the hut for further goodies.

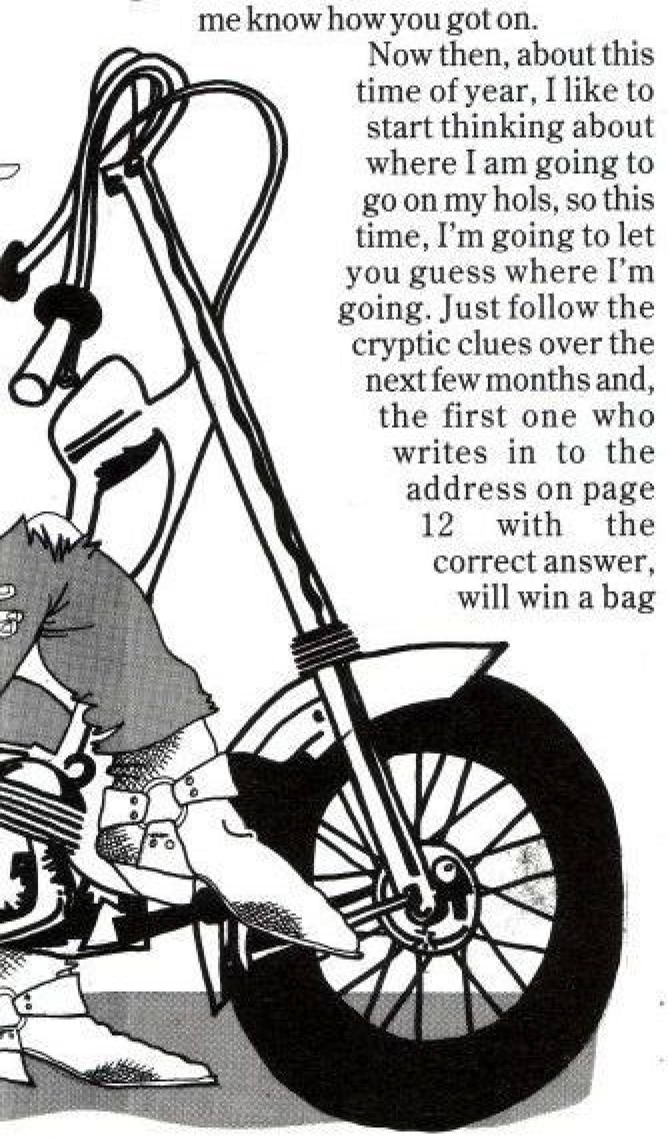
Have a look at this small





map for a layout, if you don't know it already and, above all, have fun on the hunt!

Ok, that's about it for this month, so give all of these goodies a whirl and let me know how you got on.



Now then, about this time of year, I like to start thinking about where I am going to go on my hols, so this time, I'm going to let you guess where I'm going. Just follow the cryptic clues over the next few months and, the first one who writes in to the address on page 12 with the correct answer, will win a bag of very hairy goodies. Read on for clue number one:

Sounds like President Bush would be right at home here!

Got that? Right, get your thinking hats on and let me know what you think. Until next time, happy hacking.

```
10 ' CHEAT FINDER VER1.2
20 ' BY STEPHEN MATTHEWS
30 ' (C) 1991 MEGA BYTE SOFTWARE
40 ' This Program Has Been Donated To THE PUBLIC DOMAIN
50 ' But It Must'nt Be Changed In ANY WAY!!!
60 '
70 MODE 2:LOCATE 33,1:PRINT"Memory Free :"INT(HIMEM/1024)"K":FOR j=1 TO 1000:NEX
T:ON BREAK GOSUB 240:ON ERROR GOTO 290
80 MODE 2:INK 0,0:INK 1,26:BORDER 0:PEN 1:PRINT"This Program Search's Memory For
 Possible Game Cheats. (&3D,&32,&D6,&01,&35).   Firs
t You Need To Load a BINARY File. Then Type RUN.":LOCATE 21,4:PRINT"This Program
 Was Written By - STEPHEN MATTHEWS":
90 PRINT:PRINT"This Program Search's Memory From Your START Location To The END
Location Reporting Any Cheats Found On The Way. &3D.
&32 or &D6,&01 or &35. or Possible KEYPRESSCHEATS. You May Make The Cheat Pages
Yet!, GOOD LUCK!":GOSUB 310:GOSUB 300
100 MODE 2:LOCATE 32,1:PRINT"Search for Cheats":LOCATE 31,2:PRINT STRING$(19,208
):LOCATE 35,4:PRINT"Search For:-":LOCATE 36,6:PRINT"
1. &3D,&32":LOCATE 36,8:PRINT"2. &35 or DEC (HL)":LOCATE 36,10:PRINT"3. &D6,&01"
:LOCATE 34,12:PRINT"Please Select:"
110 b$=INKEY$
120 IF b$="1" THEN s=61:b=50:g$=" &3D,&32 ":GOTO 160
130 IF b$="2" THEN s=53:g$=" &35":GOTO 160
140 IF b$="3" THEN s=214:b=1:g$=" &D6,&01 ":GOTO 160
150 GOSUB 310:GOTO 110
160 PRINT:INPUT" START Address &";ss:PRINT:INPUT" END Address &";ee:MODE 2:PRINT
"Searching FOR: "g$
170 LOCATE 1,22:PRINT"START address =&"HEX$(ss)" or "ss" DECIMAL":LOCATE 1,23:PR
INT"  END address =&"HEX$(ee)" or "ee" DECIMAL":
180 FOR a=ss TO ee STEP 1:LOCATE 26,1:PRINT"Searching &"HEX$(a)" (HEX)"
190 IF PEEK(a)=s AND PEEK(a+1)=b THEN PRINT:PRINT"Found At: &"HEX$(a)+CHR$(7):SS
S=1
200 IF PEEK(a)=s THEN PRINT:PRINT"Found At: &"HEX$(a)+CHR$(7):SSS=1
210 IF PEEK(a)=205 AND PEEK(a+1)=30 AND PEEK(a+2)=187 THEN LOCATE 20,6:PRINT"Pos
sible KEY-PRESS Cheat Found At: &"HEX$(a)+CHR$(7):SS
S=1
220 NEXT a
230 LOCATE 33,9:PRINT"Search Finished!!!"+CHR$(7):IF SSS=0 THEN LOCATE 35,11:PRI
NT"** NOT FOUND **":GOSUB 300:RUN ELSE GOSUB 300:RUN
240 MODE 1:LOCATE 15,1:PRINT"ARE YOU SURE?"
250 a$=INKEY$:a$=UPPER$(a$)
260 IF a$="Y" THEN MODE 2:LIST
270 IF a$="N" THEN MODE 2:RETURN
280 GOTO 250
290 MODE 1:LOCATE 15,1:PEN 3:PRINT"*** ERROR ***":PEN 1:LOCATE 12,5:PRINT"SORRY!
 - NO CAN DO!":FOR a=1 TO 40:SOUND 1+RND*5,45+RND*10
0,4,4:NEXT:LOCATE 12,7:PRINT"Error in LINE:"ERL:CALL &BB18:MODE 2:LIST
300 LOCATE 34,24:PRINT"[ PRESS ANY KEY ]":CALL &BB18:RETURN
310 LOCATE 33,14:PRINT"Memory Free :"INT(HIMEM/1024)"K":RETURN
```

THE WAY FORWARD

Nick Hutton investigates the modem of the future from Miracom.



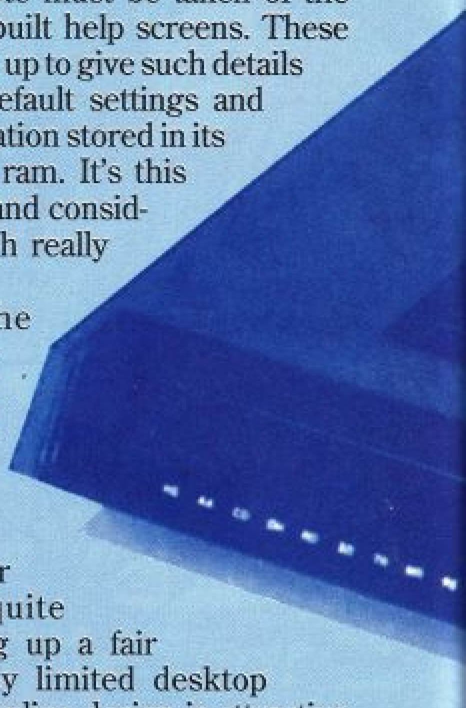
The Miracom dual standard HST modem has for some time been at the top of many Comms users' Christmas lists. It was (as far as I can remember) the first modem to offer a real 9600 bps, a value excluding compression, and many other techniques which improve throughput. When the first 2400 baud modems became affordable, huge numbers of bulletin boards and online services sprung up. It was then practical to move volumes of files around, without incurring a monumental phone bill. Today 2400 is the norm, most modems come with MNP5 compression and many have V42 Bis facilities (for an explanation of these terms see the earlier article on buying modems). The age of the 9600 baud modem has now well and truly arrived. There are no qualms about poor support or a lack of BBS's to call, these 9600 bps modems are fast dropping in price, but only now have they really reached the level of your average computer user, just getting started in comms.

So where does the HST come in? Well, Miracom's modem will function at 9600, that is V32. "So what?", you may say, "it is possible to purchase v32 modems far cheaper". However any computer user realises that sooner or later his latest piece of equipment will become obsolete. Upgrades are not always practical and, in some cases, the piece of hardware must be totally replaced. What the user needs is some sort of "buffer". The intelligent user will look not to what is here today but to what is to come. The duel standard HST offers what Miracom call high speed transmission, an incredible 14400 bps! In addition it offers something called ASL, adaptive speed levelling. This requires some further explanation. All high speed modems will attempt to keep a connection running at optimum speed by slowing down the data, in effect, lowering the density of information flying back and forth. A noisy line means the modem will slow things down until a reliable speed is reached. This feature is also becoming more common. What makes the HST special, is its ability to dynamically adapt to line quality, that is it will slow data down if the line noise is bad but it will also start to speed up if things improve. When moving large files this feature is invaluable. Even with the digital system X exchanges, one still encounters the odd fried egg on the line. With the ability to truly adapt to its environment the HST is way ahead of most modems.

What all this means is that to an extent the ds HST is future proof. It happily provides the popular v32 transmission of today, and when 14400 baud modems become more popular (as they undoubtedly will), it will not be out of date. This factor must be considered when looking at the price of the HST, remember "buy in haste, repent at leisure!" The recent addition of the V32bis function is really outstanding, this standard provides excellent transfer rates and compression.

Well, that's most of the revolutionary technology covered. With all those new and exotic features one might think that the modem would be rather tricky to use. Nothing could be further from the truth, this is the MOST standard and easily controlled modem I have seen. All the Hayes commands work as expected and I was able to plug it in and immediately get to work. My 2400 MNP5 modem was almost impossible to configure, with acres of dip switches.

Special note must be taken of the modem's inbuilt help screens. These can be called up to give such details as factory default settings and the configuration stored in its non volatile ram. It's this sort of care and consideration which really stands out.



From the outside, the HST is quite distinctive, it is by comparison to other modems quite large, taking up a fair chunk of my limited desktop space. Its slimline design is attractive but I sometimes wonder if it should have been a little higher in order to give

more desk space. The front panel boasts no fewer than 12 LEDs. This array is at first a little confusing, (especially if you, like me, are used to 6 or 4) but, being able to tell what is going on at a glance is very useful. Some modems which boast many of the features of the HST have adopted more expensive LCDs to give information to the user. I would consider these an unnecessary expense and all they seem to do on most modems, ie the Racal Maxam V, is display the normal modem result codes which appear on your computer screen anyway.

The back of the HST is fairly plain with the normal 25 pin connector and lead out to your phone line. The power supply is external, but does have a long enough lead so it doesn't have to be near the modem and can be safely hidden away. I did notice a blanked out panel, which perhaps could be fixed over, which was some sort of output to your phone. There is also a voice/data button on the front facia which will allow you to hear if the line noise is just courtesy of BT or if, for example, one of your cohabitants has picked up the phone in another room. Dip switches are provided and are set up for normal use by Miracom, in my case they needed no modification. A volume dial is found under the front lip of the modem facia and is quite handy, certainly less fuss to use than the software toggles for loud/quiet operation.

The case is plastic and feels a little flimsy although it serves its purpose. For this money a metal case would have been appropriate I think, as there is a tendency for things to pile up on the users desk, possibly one may put something down on top of the case. Another interesting, and to my knowledge unique feature of the HST, is that its underside is decorated with a brief summary of dip switch settings and pinouts etc. This is a real boon as it means that if you should need to take the modem from the office to use say, at home, then the manual is not required for all but the most complex of problem solving.

The standard AT command set is fully implemented and is quick and relatively easy to use. The HST even has help screens (pages of text provided as a quick reminder to users of how to operate the modem), Phone numbers and your usual configuration can all be stored in memory so you need not cart the manual around with the modem whenever it leaves your desk.

The manual deserves special mention as it is really more than just a guide to operation. It is more of a basic grounding in comms. This may at first seem a little bewildering but it's worth sitting down and reading the manual because it is well written and very extensive. Miracom also provide technical phone help to get you off the ground.

My usual procedure is not to read the manual unless something goes wrong or I get stuck, subscribers to this school of thought will also have no problems.

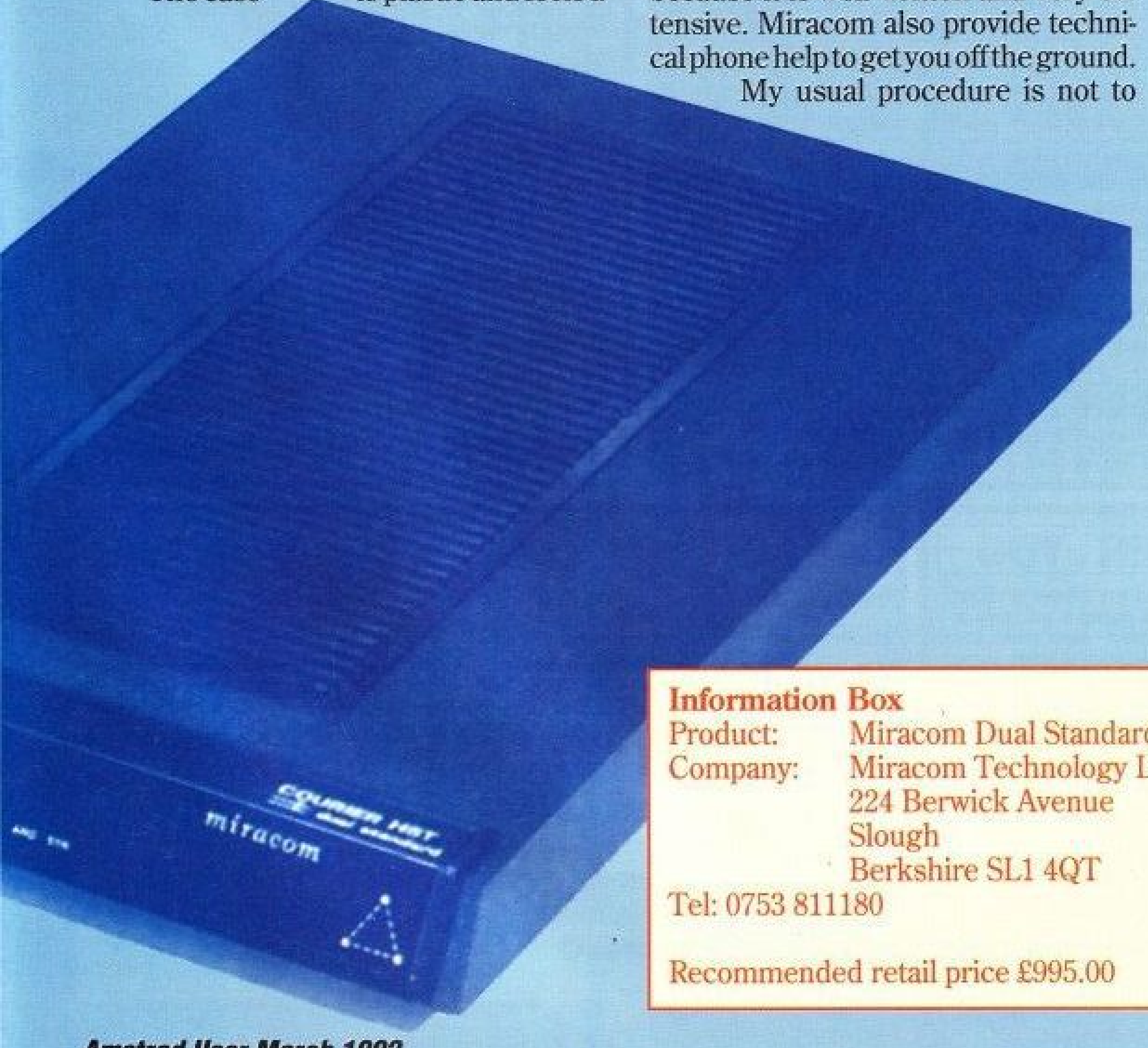
When transferring heavyweight files over short distances, the HST sets a blistering pace, and on a local System-X (digital) exchange, a speed of 3500 cps was obtained, although speeds of 1500-1750 cps were more usual. What this really means is that files of 30-50K can be downloaded in a matter of seconds. It was difficult to generate a poor line connection (you can never find one when you want one), but the HST coped well even when signal clarity dropped, it was also possible to see it try to recover when the line improved.

However, line noise of any sort will slow down any modem considerably and the HST is no exception.

Well, now we get to the question of price. The DS HST with V32 bis is a high performance modem with good support and sophisticated extras like the help commands. For this sort of equipment the price is really not that bad. Although eight hundred pounds is certainly not a drop in my ocean. There is the factor of reduced phone bills with less time online, and if you intend to get very heavy use from it it WILL pay for itself in time......

As I mentioned near the start of the review the HST is, to a degree, future proof, in that its time of maximum popularity is yet to come. It is this reassuring trait which makes the HST a definite must for the really serious comms user.

N.B After shopping around I found a company selling the modems for a mere £549, although this model did not include the recent v32BIS functions. So the message is shop around, discounts are available if you look hard enough!



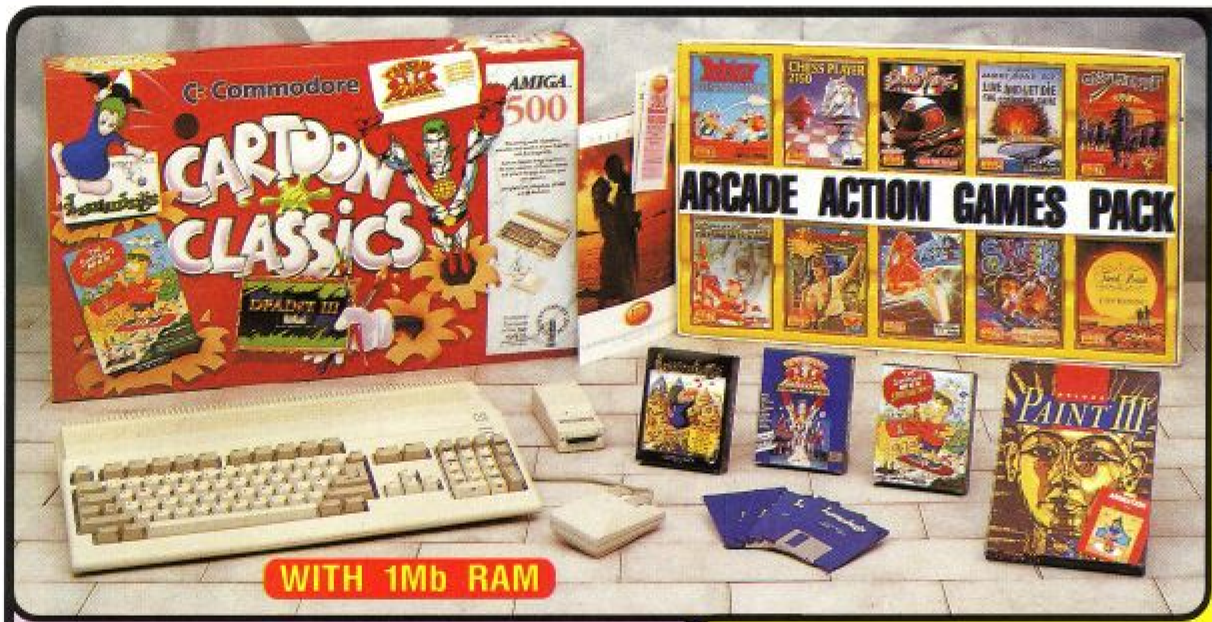
Compatability

SPEED	DUPLEX	SPEC
14,400	FDX (Split)	HST
9,600	FDX	v.32
2,400	FDX	v.22 bis
1,200	FDX	v.32/BELL 212A
300	FDX	v.21

Information Box

Product: Miracom Dual Standard HST with V32BIS
Company: Miracom Technology LTD
224 Berwick Avenue
Slough
Berkshire SL1 4QT
Tel: 0753 811180

Recommended retail price £995.00



AMIGA

STAND-ALONE 500 COMPUTER

- 512K AMIGA £329.99
- TV MODULATOR .... FREE
- MOUSE CONTROLLER .... FREE

PLUS! - FREE FROM SILICA

- ARCADE ACTION PACK £229.78
- PHOTON PAINT 2.0 .... £89.95

TOTAL RRP: £649.72
YOU SAVE: £320.72
SILICA PRICE: **£329**

PLUS! ***FREE*** HOLIDAY ACCOMMODATION

£329

SILICA PRICE - INCLUDES VAT + FREE DELIVERY

NEW! CARTOON CLASSICS PACK

HARDWARE:

512K AMIGA 500	£329.99
A520 TV MODULATOR	FREE
A501 RAM EXPANSION	£99.99

SOFTWARE - ENTERTAINMENT

BART SIMPSON	£24.99
CAPT PLANET & PLANETEERS	£25.99
LEMMINGS	£25.99

SOFTWARE - PRODUCTIVITY

DELUXE PAINT III	£79.99

PLUS! FREE FROM SILICA

ARCADE ACTION PACK	£229.78
PHOTON PAINT 2.0	£89.95

TOTAL RRP: £906.67
YOU SAVE: £507.67

PLUS! **16 NIGHTS FREE HOLIDAY ACCOMMODATION**

£399

SILICA PRICE - INC VAT + FREE DELIVERY



FREE! FROM SILICA WITH EVERY *AMIGA*

ARCADE ACTION PACK

The new Arcade Action Games Pack is THE software compendium for Amiga owners, featuring ten top titles with a variety of different types of games for you to enjoy. Each title is packaged in its own plastic case, with a colour sleeve and full instructions. The Arcade Action Pack is FREE! when you buy your Amiga 500 from Silica.

FREE! WORTH: **£219.78**



FREE! PHOTON PAINT 2.0 GRAPHICS PACKAGE

Every Amiga 500 from Silica Systems comes with a FREE Photon Paint 2.0 (RRP £89.95), one of the most advanced art packages available for the Amiga. With it, you will be able to harness the extraordinary graphics power of the Amiga and produce inspirational pictures in minutes. With 4096 colours, your pictures will reach life-like appearance. These can be animated in real-time using a vast range of graphical effects, including blending colours and dithering, stencils, shadowing, contour mapping and surface mapping.



WORTH **£89.95**

FREE! 16 NIGHTS HOLIDAY HOTEL ACCOMMODATION

Every Amiga from Silica comes with a FREE 72 page, full colour brochure with accommodation vouchers. These vouchers entitle 2 people to stay up to 16 nights in one hotel (or any number of hotels to a total of 16 nights) with accommodation FREE (you could take up to six nights for four people, or other options). Choose from the 250 hotels featured in the catalogue. All you have to pay for are your meals (prices are listed in the brochure). Reduced rates in top London hotels and hotels in France are also featured.



TOTAL FREE PACKAGE

***ARCADE ACTION PACK* - £229.78:**

Asterix - *By Coktel Vision*	£24.99
Chess Player 2150 - *By CP Software*	£24.95
Drivin' Force - *By Digital Magic*	£24.95
Live & Let Die - *By Elite*	£19.99
Onslaught - *By Hewson*	£24.99
Pipe Mania - *By Empire Software*	£24.99
Rick Dangerous - *By Firebird*	£24.99
Rock 'n' Roll - *By Rainbow Arts*	£19.99
Skweek - *By US Gold*	£19.99
Trivial Pursuit - *By Domark*	£19.95

***ART PACKAGE* - £89.95:**

Photon Paint 2.0 - *By MicroIllusions*	£89.95

TOTAL RRP: £319.73

FREE! WORTH NEARLY: **£320**

PLUS! ***FREE*** HOLIDAY ACCOMMODATION

SILICA SYSTEMS OFFER YOU

- ***FREE OVERNIGHT COURIER DELIVERY:*** On all hardware orders shipped in the UK.
- ***TECHNICAL SUPPORT HELPLINE:*** Team of Amiga technical experts at your service.
- ***PRICE MATCH:*** We normally match competitors on a "Same product - Same price" basis.
- ***ESTABLISHED 12 YEARS:*** Proven track record in professional computer sales.
- ***BUSINESS + EDUCATION + GOVERNMENT:*** Volume discounts available for large orders.
- ***SHOWROOMS:*** Demonstration and training facilities at our London & Sidcup branches.
- ***THE FULL STOCK RANGE:*** All of your Amiga requirements from one supplier.
- ***FREE CATALOGUES:*** Will be mailed to you with offers and software/peripheral details.
- ***PAYMENT:*** By cash, cheque and all major credit cards.

Before you decide when to buy your new Amiga computer, we suggest you think very carefully about WHERE you buy it. Consider what it will be like a few months after buying your Amiga, when you may require additional peripherals or software, or help and advice with your new purchase. And, will the company you buy from contact you with details of new products? At Silica Systems, we ensure that you will have nothing to worry about. We have been established for over 12 years and, with our unrivalled experience and expertise, we can now claim to meet our customers requirements with an understanding which is second to none. But don't just take our word for it. Complete and return the coupon now for our latest Free literature and begin to experience the "Silica Systems Service".

MAIL ORDER HOTLINE **081-309 1111**

SILICA SYSTEMS

MAIL ORDER: 1-4 The Mews, Hatherley Rd, Sidcup, Kent, DA14 4DX **Tel: 081-309 1111**
Order Lines Open: Mon-Sat 9.00am-6.00pm No Late Night Opening Fax No: 081-308 0608

LONDON SHOP: 52 Tottenham Court Road, London, W1P 0BA **Tel: 071-580 4000**
Opening Hours: Mon-Sat 9.30am-6.00pm Late Night: Thursday until 8pm Fax No: 071-323 4737

LONDON (SELFRIDGES): 1st Floor, 369 Oxford Street, London, W1A 1AB **Tel: 071-629 1234**
Opening Hours: Mon-Sat 9.30am-6.00pm Late Night: Thursday until 8pm Ask for extension 3914

SIDCUP SHOP: 1-4 The Mews, Hatherley Rd, Sidcup, Kent, DA14 4DX **Tel: 081-302 8811**
Opening Hours: Mon-Sat 9.00am-5.30pm Late Night: Friday until 7pm Fax No: 081-309 0017

To: Silica Systems, Dept ACUSR-0392-60, 1-4 The Mews, Hatherley Rd, Sidcup, Kent, DA14 4DX

PLEASE SEND FREE AMIGA COLOUR CATALOGUE

Mr/Mrs/Ms: .... Initials: .... Surname: ....

Address: ....

....

....

Postcode: .... Tel: ....

Which computer(s), if any, do you own? ....

E&OE - Advertised prices and specifications may change - please return the coupon for the latest information.

KNOCK DOWN PRICES!



Subscribe to Amstrad Computer User for 12 issues and we will knock £5.00 off the subscription rate!

Subscribe for 24 issues and we will knock £11.00 off the subscription rate!!

WHAT ARE YOU WAITING FOR? DO IT NOW!!

Fill in the coupon below and send it with your remittance to: MSM Subscriptions Department, Lazahold Ltd., P.O. Box 10, Roper Street, Pallion Industrial Estate, Sunderland SR4 6SN. (the first issue of a new subscription to be delivered will be one or two issues after the one you placed your order in.)

Please send me my 12/24 month subscription to ACU at the special discount rate of £ _______
I enclose my cheque/money order for £ _______ made payable to MCPC Ltd or debit my Access/ Visa card. No. ____________________ Expiry date ____________________
Name ____
Address ____
____
____________________ (Please enter postcode to ensure prompt delivery)
Signed. ____________________ Date. ____________________ ACU 0392

UK £14.80 12 mths £28.60 24 mths	EUROPE £30.70 12 mths £60.40 24 mths	REST OF £43.60 12 mths WORLD £86.20 24 mths

Overseas rates include Airmail service

O.J. SOFTWARE

FAST FRIENDLY SERVICE

ADVENTURE

	CASS	DISC
Acheton		£11.95
Avon (With Murdac)		£11.95
B.A.T.		£20.95
Bards Tale Hint Book		£5.95
Countdown To Doom		£11.95
Dragons Of Flame	£11.95	£15.95
Giant Killer (Maths Adv)		£15.95
Hero Quest	£9.50	£12.95
Hero Quest Ret/ WLord	£5.99	£7.99
Kingdom Of Hamil		£11.95
Lancelot (128K)		£15.95
Last Days Of Doom		£11.95
Philosophers Quest		£11.95
Pirates (6128 only)		£15.95
Return To Doom		£11.95
Time & Magic (128K)		£11.95
Tolkein Trilogy	£10.95	£14.95

ARCADE

	CASS	DISC
Alien Storm	£9.95	£13.95
B.A.T.	£9.95	£20.95
Battle Command		£12.95
Captain Planet	£9.50	£13.95
Cisco Heat	£9.50	£12.95
Extreme	£8.50	£11.95
Final Fight	£9.95	£13.95
F16 Combat Pilot	£11.95	£15.95
Golden Axe	£9.50	£11.95
Hudson Hawk	£9.50	£12.95
Lotus Turbo Esprit	£9.50	£12.95
Mercs	£9.95	£13.95
Night Shift	£9.95	£13.95
North & South	£10.95	£13.95
Pit Fighter	£9.50	£14.95
Predator II	£9.50	£12.95
Prince of Persia	£8.50	£11.95
Rick Dangerous II	£8.50	£11.95
Robozone	£9.50	£12.95
Shadow Dancer	£9.95	£13.95
Sim City	£10.95	£14.95
Simpsons	£9.50	£12.95
Smash T.V.	£9.50	£12.95
Super Monaco G.P.	£9.50	£12.95
Super Space Invader	£9.50	£14.95
SWAP (128k)		£12.95
Terminator II	£9.50	£12.95
Thunderjaws	£9.50	£14.95
Total Recall		£12.95
Toyota Celica G.T.	£9.50	£11.95
Turrican II	£5.95	
WWF Wrestlemania	£10.95	£12.95
3D Construction Kit	£21.95	£21.95

CARTRIDGES

Barbarian II	£21.95
Batman The Movie	£21.95
Crazy Cars II	£24.95
Fire & Forget II	£24.95
Navy Seals	£21.95
Operation Thunderbolt	£21.95
Pang	£21.95
Plotting	£21.95
Pro Tennis	£21.95
Robocop II	£21.95

COMPILATIONS

	CASS	DISC
CAPCOM COLL: StriderII, LED Storm, Gh&Ghosts, DynWars etc	£14.95	£20.95
CHART ATTACK: Lotus Esp, Gh&Ghost, Supcars, Sh.Beast, Impossamole	£11.95	£15.95
CARTOON COLL: Dizzy, C.J's, Spike, Seymour, Sl. Magic	£8.50	.....
DIZZY COLL: Dizzy, FFood, TrlsDizzy, FWDizzy, MLDizzy	£8.50	.....
GRANDSTAND: Gazza, W.Cl.LBoard, Cont. Circus, Pro Tennis	£11.95	£15.95
HOLLYWOOD COL: Robocop, GhBustII, Bman Mov, I.Jones L.C.	£11.95	£15.95
MAX PACK: Turrican II, Swiv, St. Dragon, Night Shift	£13.95	£20.95
MOVIE PREMIERE: Turtles, B.FutII, Grem.II, I.Jones L.C.	£11.95	£15.95
SOCCER STARS: Kick Off II, Gazza II, E. Hughes, Micro Prose Socc	£10.95	£20.95
SUPER HEROES: Last Ninja II, Strider II, I. Jones, Spy L. Me	£11.95	£15.95
SUPER SEGA: Sup. Monaco, ESWAT, Crackdown Gold Axe, Shinobi	£14.95	£20.95
SUPER SIM PACK: Int 3D Ten, Cr. Cars II, Italy 1990, A. Ranger	£13.99	£20.95
TOLK.TRILOGY: The Hobbit, Lord Of Rings, Shadows Mordor	£10.95	£14.95
VIRT. WORLDS: Driller, Total Eclipse, Crypt, Castle Master	£11.95	£15.95

STRATEGY/SIMULATION

	CASS	DISC
Ancient Battles	£11.95	£11.95
Battle Of The Bulge	£10.95	£11.95
Blockbusters	£7.95	.....
Colossus 4.0 Bridge	£9.95	£11.95
Colossus 4.0 Chess	£8.50	£11.95
Crete 1941	£10.95	£11.95
Em. Hughes Arc Quiz	£9.50	£11.95
Em. Hughes Int Soc	£8.50	£11.95
Europ. Super League		£11.95
F15 Strike Eagle	£8.50	£11.95
F16 Combat Pilot	£11.95	£15.95
Gunship	£11.95	£15.95
Kick Off II	£8.50	£11.95
Man. United Europe	£9.95	£12.95
Mindstretchers		£15.95
Pirates (6128 only)		£15.95
R.B.I. 2 baseball	£9.50	£14.95
Scrabble Deluxe 6128		£12.95
Silent Service	£8.50	£11.95
Super Monaco G.P.	£9.50	£12.95
SWAP (128k)		£12.95
Toyota Celica G.T.	£9.50	£11.95
Triv. Pursuit Genus	£11.95	£15.95
World Class Rugby	£9.50	.....
Yes Chancellor		£15.95
3D Construction Kit	£21.95	£21.95

BUSINESS/UTILITIES

Advanced Art Studio	£19.95
AMX Extra Extra	£20.95
AMX Mouse & Art	£64.95 £64.95
AMX Mouse & Stop Press	£74.95
Cr. Course Typing (6128 +PCW)	£20.95
Mastercalc 128 (128k)	£27.95
Masterfile III (128k)	£29.95
Maxam	£23.95
Mini Office II	£12.95 £16.95
Money Manager (+PCW)	£24.95
Prospell	£20.95
Protext	£16.95 £23.95
Protype	£23.95
Sprites Alive Compiler	£24.95
Stockmarket	£29.95
Stop Press (128k)	£39.95
Tas-Sign (6128+PCW)	£29.95
Tas-Spell	£20.95
Tasdiary	£20.95
Tasword 464	£20.95 £24.95
Tasword 6128	£24.95

ACCESSORIES

Amstrad DD1 Disc Drive	£159.95
Amstrad FD1 2nd Drive	£99.95
Amstrad MP1 + PS for 6128	£38.90
Amstrad MP1 MOD. for 464	£28.95
Amstrad MP3 TV Tun CTM644	£39.95
Cassette Alignment Kit	£7.95
Cassette Lead	£3.95
Cassette Recorder	£20.95
Cassette Recorder + leads	£23.95
Cover DD1/FD1 Disc Drive	£2.95
Cover DMP 2/3000 Series	£4.95
Cover Set 464+/6128+ M/Col	£8.95
Cover Set 464/6128 M/Col	£7.95
Disc Box 80 3.5", 50+ 3"	£9.95
Disc Drive Cleaner 3"	£5.95
Discs 3" ...£2.65 Ea, 5 for	£12.50
Discs 3" 10 For	£23.95
FD1 Cable for 664/6128	£7.95
GeniusMouse + Adv Art	£49.95
GeniusMouse + Adv Art 6128	£49.95
Joystick Splitter	£8.95
Keyboard Ext Leads CPC+	£8.95
Keyboard Ext Leads 464	£7.95
Keyboard Ext Leads 6128	£8.95
Memory Exp. 64k 464/664	£44.95
Mouse Mat	£4.95
Multiface II CPC/CPC+	£46.95
Printer Cable CPC 1mtr	£8.95
Printer Cable CPC 2mtr	£10.95
Printer Cable CPC+ 2mtr	£7.95
Ribbon Re-ink	£11.95
Surge Protection Plug	£12.95
464+/6128+ Exp. Port Adap	£9.95

JOYSTICKS

AMSTRAD JY2	£7.95
CHEETAH Bug	£13.95
CHEETAH MACH 1	£11.95
CHEETAH Starprobe	£13.95
CHEETAH Tortoise	£9.95
CHEETAH 125+	£9.95
COMPETITION PRO 5000	£14.95
CRUISER Multicolour	£10.95
KONIX NAVIGATOR	£12.95
KONIX SPEEDKING	£10.95
QUICKSHOT TURBO III	£9.95
QUICKJOY JETFIGHTER	£14.95
STINGRAY	£13.95
ZIPSTICK SUPER PRO	£14.95

EDUCATION PRE-SCHOOL

	AGE	CASS	DISC
1st Steps Mr Men	4-8	£12.95	£12.95
Caesar's Travels	3-9	£12.95	.....
Here there Mr Men	4-8	£12.95	£12.95

PRIMARY WORD SKILLS

	AGE	CASS	DISC
Better Spelling	9+	£9.95	£13.95
Early Words	3-6	£8.95	£13.95
Fun With Words	7-	£8.50	£11.95
Happy Letters	3-6	£10.95	£15.95
Happy Writing	3-6	£10.95	£15.95
Lets Play Words	4-8	£12.95	£12.95
Play & Read Pt 1	4+	£11.95	£14.95
Play & Read Pt 2	4-6	£10.95	£11.95
Read Right Away 1	5-8	£9.95	£12.95
Read Right Away2	6-9	£9.95	£12.95
Read Right Away3	7+	£9.95	£12.95
Wordhang	5+	£10.95	£15.95

PRIMARY MATHS SKILLS

	AGE	CASS	DISC
Early Maths	4-8	£8.95	£13.95
Fun With Numbers	7-	£8.50	£11.95
Happy Numbers	3-5	£10.95	£15.95
Lets Pl. Numbers	4-8	£12.95	£12.95
Lets Play Money	4-8	£12.95	£12.95
Magic Maths	4-8	£8.95	£12.95
Primary Maths	3-12	£24.95	£24.95
Timeman 1	4-9	£10.95	£15.95
Timeman 2	4-10	£10.95	£15.95

MATHEMATICS

	AGE	CASS	DISC
Better Maths	12-16	£9.95	£13.95
Micro Maths	9-Ad	£24.95	£24.95
Mega Maths	15+	£24.95	£24.95

SCIENCES

	AGE	CASS	DISC
Biology 1	12-16	£9.95	£13.95
Chemistry 1	12-16	£9.95	£13.95
Physics 1	12-16	£9.95	£13.95

LANGUAGES

	AGE	CASS	DISC
French Mistress	11+	£13.95	£16.95
German Master	11+	£13.95	£16.95
Italian Tutor	11+	£13.95	£16.95
Spanish Tutor	11+	£13.95	£16.95
Micro English	8-Ad	£24.95	£24.95

GENERAL

	AGE	CASS	DISC
Funschool II	6-	£9.50	£11.95
Funschool II	6-8	£9.50	£11.95
Funschool II	8+	£9.50	£11.95
Funschool 3 or 4	5-	£10.95	£13.95
Funschool 3 or 4	5-7	£10.95	£13.95
Funschool 3 or 4	7+	£10.95	£13.95
The Three Bears	5+	6128	£13.95
Granny's Garden	6-10	6128	£16.95
Dragon World	6-10	6128	£20.95
Giant Killer	9-14		£15.95
Answer Back Jnr	6-11	£8.50	£11.95

QUESTION PACKS FOR ANS BACK JNR

	AGE	CASS	DISC
Arithmetic	6-11	£4.95	£7.95
Spelling	6-11	£4.95	£7.95
Nat. History	10+	£4.95	£7.95
20th Cent. Hist	12+	£4.95	£7.95
English Words	12+	£4.95	£7.95
World Geography		£4.95	£7.95

PRINTERS

STAR LC20 9 Pin Mono £159.95
SPEED (Pica, cps):150 Draft, 37 NLQ
FEATURES:- 4 NLQ Fonts, Double/Quad Size Characters, Friction/Tractor Feed, Paper Parking.

STAR LC200 9 Pin Colour £239.95
SPEED (Pics, cps):200 High Sp.Draft 150 Draft, 37 NLQ
FEATURES:- Colour Printing, 4 NLQ Fonts, Double/Quad Size, Paper Park.

STAR LC24/10 24 Pin Mono £229.95
SPEED (Pica, cps): 150 Draft, 50 LQ
FEATURES:- 4 Letter Quality Fonts Double/Quad Size Character, Outline, Shadow, Paper Parking etc

All Printers are Supplied with a cable and are ready to use.
Prices include VAT and Postage.

3 Day Securicor Delivery Add £5.

PRINTER RIBBONS

QUANTITY	1	2	5	10
DMP 2/300	3.75	7.00	16.25	30.00
STAR LC10	3.75	7.00	16.25	30.00
STAR 24/10	4.95	9.00	20.00	37.50
LC200 MONO	5.50	10.00		
LC200 COL.	10.95	20.00		

SEGA GAMES CONSOLES

SEGA MASTER SYSTEM II £59.99
Includes Control Pad, RF Switch Box Mains Adaptor, Alex Kidd Game

ACCESSORIES

Additional Control Pad	£6.99
Control Stick	£14.99
Rapid Fire Unit	£5.99
Light Phaser + Cartridge	£44.99
Master System Games from	£9.99

SEGA MEGA DRIVE £129.99
With Control Pad, Sonic Hedgehog

ACCESSORIES

Additional Control Pad	£14.99
Power Stick (Rapid Fire)	£34.99
Power Base Convertor Allows Use of Master System Games	£29.99
Mega Drive Games from	£29.99

SEGA GAME GEAR £99.99
Portable Colour Games System

10% Off All Sega Games Over	£15.00
M/SYSTEM G-Loc	£26.99
M/SYSTEM Super Kick Off	£26.99
M/System Leaderboard	£26.99
M/DRIVE Sonic Hedgehog	£31.49
M/Drive Street Of Rage	£31.49
Game Gear Shinobi	£22.49
GAME GEAR WClass LBoard	£22.49

BARCLAYCARD VISA

NEW GAMES AVAILABLE ON DAY OF RELEASE: PLEASE PHONE FOR AVAILABILITY
TELEPHONE/FAX ORDERS (0257) 421915 Mon - Fri 9.00-17.30 Sat 9.00-12-30 (Answerphone/Fax other times)

Access

Qty .... Description .... Price ....

Name: ....
Address: ....

Tel No: ....
Date: ....

Total .... £

Signed: ....

PRICES INCLUDE POST & PACKING IN U.K. PLEASE MAKE CHEQUES/PO'S PAYABLE TO **O.J. SOFTWARE**

I enclose CH/PO for £ ______ Or debit ACCESS/VISA No. ______ Exp ______

O.J. SOFTWARE, 273 MOSSY LEA ROAD, WRIGHTINGTON, NR WIGAN, LANCS. WN6 9RN

MOST ORDERS ARE DESPATCHED BY RETURN (OUT OF STOCK ITEMS NORMALLY WITHIN ONE WEEK)

OVERSEAS ORDERS: SOFTWARE ITEMS OVER £10.00 Ea POST FREE, OTHERS ADD £1.00 Ea.

★ SPECIAL OFFER ★ ALL SOFTWARE ORDERS OVER £35 RECEIVE A FREE CALCULATOR

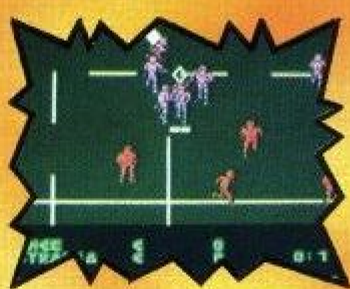
Don your composing gloves as ACU tries out Ubisoft's excellent Equinox, braves the force of the Aussies in World Class Rugby and has a bash at the host of goodies included on the Superheroes Collection.

BOMB ALLEY

EQUINOX

Mozart eat your heart out.



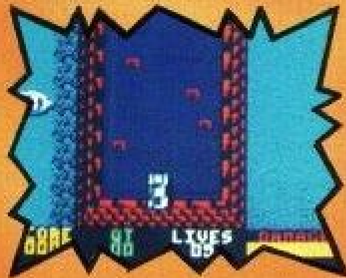


WORLD CLASS RUGBY

A little late, but it packs a powerful punch.

SUPERHEROES

Another classic blast collection.



PLUS

The latest offerings from the Fun School stable, a little light music from Ubisoft, lunar adventure in Moontorc and all the latest Budget Blasts to hit the shelves. "You'd be very foolish to miss it!" – Amy Dobson (Hairy's Aunty).

TOP 20

1 (3) Quttro coin-ops
Code Masters
2 (1) New Zealand Story
Hit Squad
3 (8) Moonwalker
Kixx
4 (NE) Chase HQ
Hit Squad
5 (9) Dragon Ninja
Hit Squad
6 (10) Bubble Bobble
Hit Squad
7 (5) Altered Beast
Hit Squad
8 (14) Magic Land Dizzy
Code Masters
9 (11) Dizzy Panic
Code Masters
10 (7) Terminator 2
Ocean
11 (6) First Division Manager
Code Masters
12 (4) Quattro Skills
Code Masters
13 (20) Dizzy Collection
Code Masters
14 (12) Turbo Outrun
Kixx
15 (13) Batman – The Movie
Hit Squad
16 (2) Shinobi
Tronix
17 (16) Indiana Jones – Last Crusade
Kixx
18 (NE) Chuckie Egg
Pick 'N' Choose
19 (NE) The Match
D&H Games
20 (11) Quattro Cartoon
Code Masters

Last month's position in bracket s

Those clever chappies at Audiogenic have certainly tried to cram as much as possible into this little offering, in an excellent attempt to capture the true atmosphere of the game of rugger and, to a certain extent, they have succeeded.

What this means in real terms, is that playing World Class Rugby really is a pretty good simulation of the real thing. As a result, if you are one of the few people who have never had any true contact with the sport, then you may have to get hold of a good rule book and acquaint yourselves with some of the regulations before you get going, otherwise you may get left in the dark from time to time concerning forward passes and freeing the ball when you go down.

That aside, World Class Rugby should be a guaranteed winner with rugby fans. Flicking through the opening menu, you will see that you have a choice of games to start off with, ranging from an international friendly, recommended to get a feel for the moves, through full league season, to the ultimate World Cup Challenge.

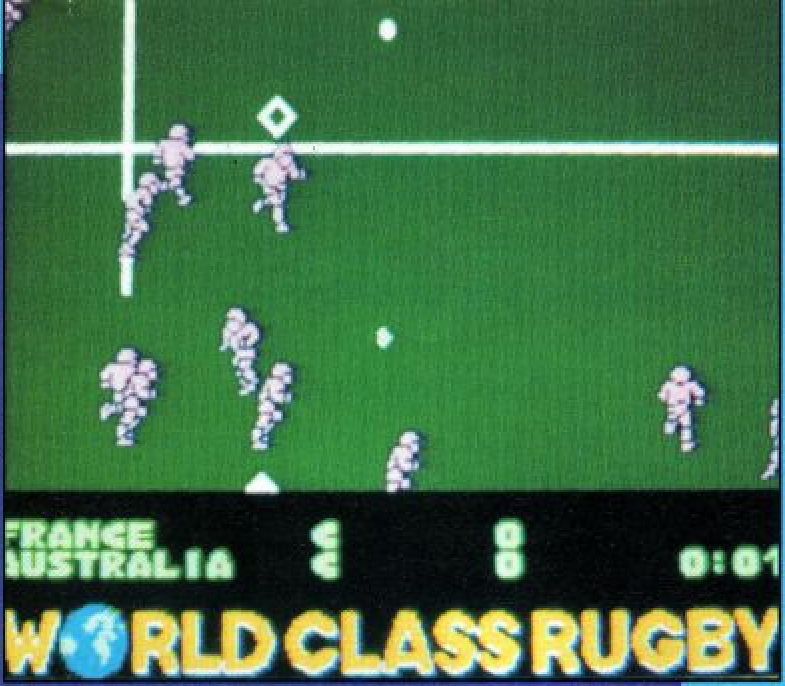
Choose your favourite team, be it England, Ireland, Scotland, Wales, or some of the lesser teams like Australia and the All Blacks (!!) and get gunning for the tries.

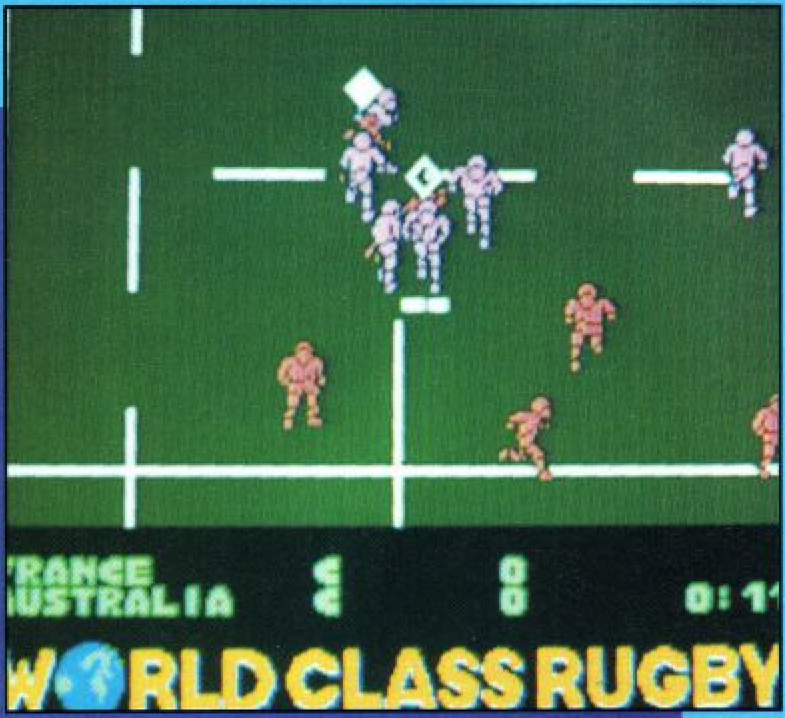
Kicking off, your player, either in possession or closest to the play, is indicated by an arrow. Put your weight behind your joystick and get rucking and mauling.

Once you have the ball, keep looking for openings, either for a run, or for a pass down the line, selected by pressing the fire button and pushing the stick in the required direction.

There are a whole host of options to choose from during play, including dummy runs and passes, special moves from scrums and line-outs, as well as rucks and mauls.

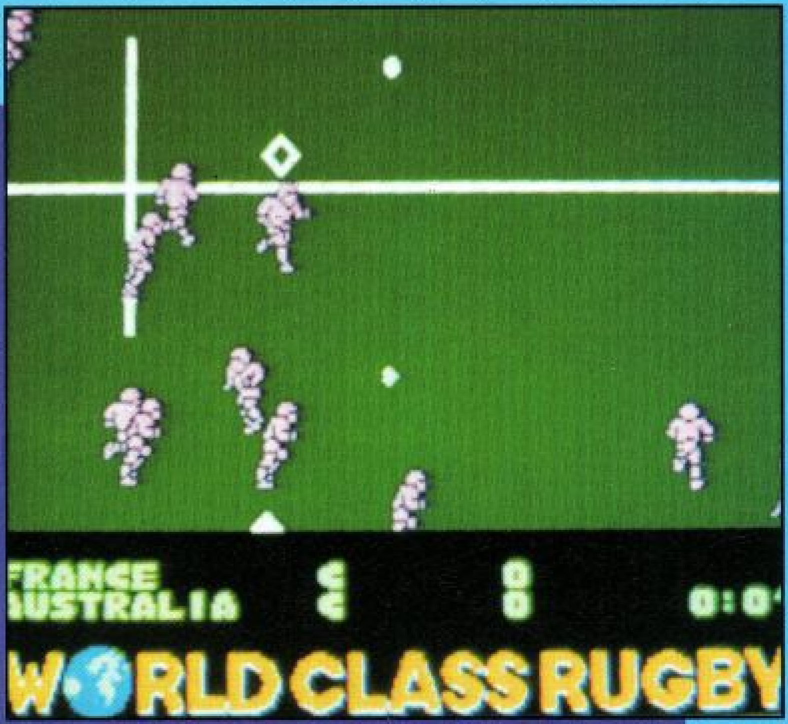
If you manage to get near the opponent's goal line, make sure you know the procedure for diving over the line, and try to get under the posts to get the best conversion chance you can.





WORLD CLASS RUGBY

The World Cup is over, but can you capture the trophy for England?



Again, there are options to be considered when going for the kicks, so scan the radar screen to determine your best length and loft for the shot.

World Class Rugby may lack a little on the colour stakes, but that may be the result of the jam-packed game programming, allowing you to get a true feel for the game and making for a superb simulation.

Can you make it all the way to the final? That's up to you but, if you like Rugby, then you'll enjoy trying.

ROUND-UP

NAME	World Class Rugby		
FROM	Audiogenic	PRICE	Disc £16.99 Cassette £10.99
68%	75%	88%	
GRAFFIX	SONIX	PLAYABILITY	VERDICT



MOONTORC

Derring-do abounds as you rush to the rescue of beautiful Princess Lalena.



Pick up your knapsack and get set for some epic swordplay in this excellent offering from Atalantis. The scenario is simple, if a little obvious, concerning a damsel in distress, but the gameplay is superb.

The Dark Lord has taken Lalena hostage, and your task is to battle your way through four arduous landscapes, taking on his evil hordes as you go, in a desperate bid to save her from a fate worse than death.

Starting off, you already have a fairly awesome armoury, consisting of sword and throwing daggers. However, if you want to stay around for a while, you'll need to buy some more pretty fast.

The only way to progress through the four different levels; the arid plains, bottomless caverns, soaring mountains and dark, forbidding forests respectively, is to collect as much gold as you can.

Picking up as many chests as you can will fill your coffers nicely, though you will have to pick off the guards to get your hands on it. Once you have, keep your eyes peeled for the shops which are scattered over the levels. Here, you can purchase extra shields, spells, keys and parts of the precious Moontorc.

What do you need the Moontorc for? Basically, if you want to get past the vicious Tollmen at the end of each level, you must collect the three parts of the Moontorc, otherwise you'll never get anywhere near Lalena.

Use your gold sparingly and make sure you have enough to buy the pieces, allowing you to move on to bigger and badder opponents.

Buying the colour coded keys at the shop is also a good idea. Most of the important items you will need are locked behind doors, so buying as many keys to fit the same colour doors will certainly help you out.

Scount around for extra items and food as you go, as every little bit will help you in this superb quest. Featuring some very smart graphics and excellent sound effects, Moontorc is a joy to play.



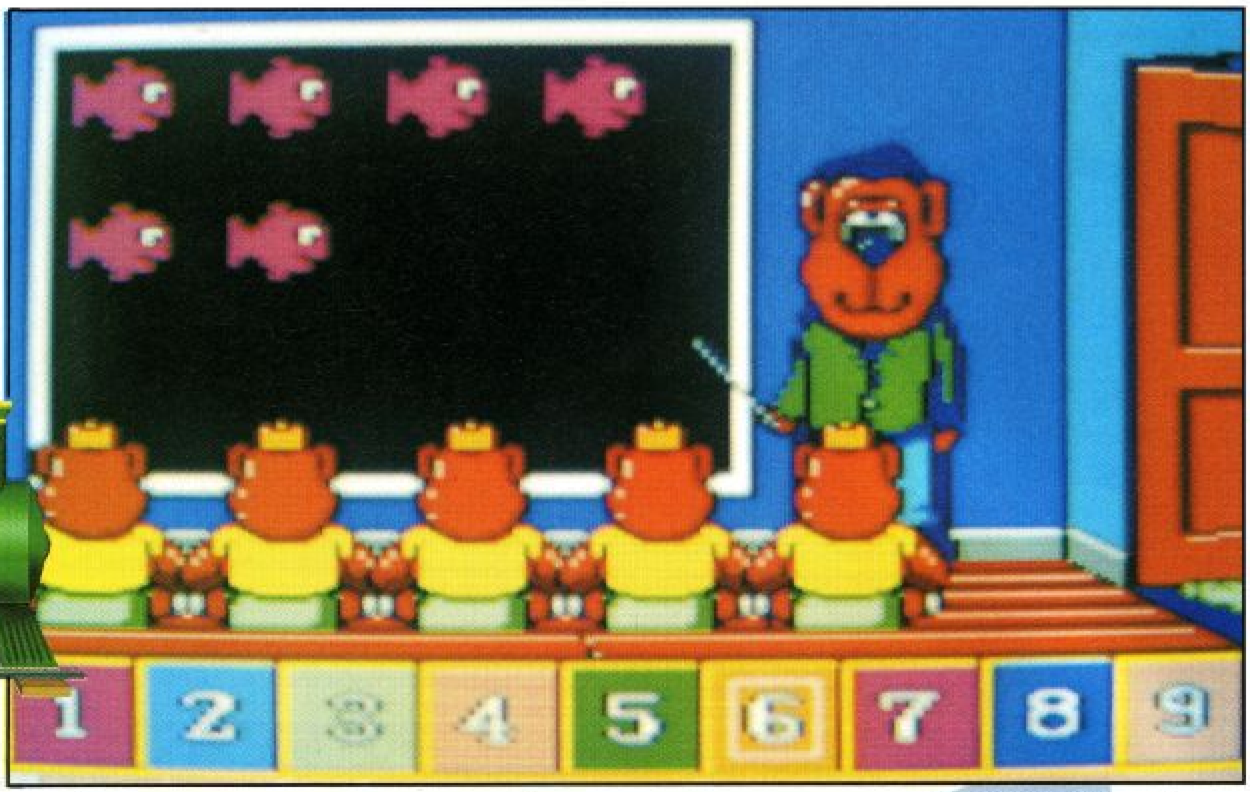
Use your spells carefully, as they only work against certain creatures. You'll have to work out which ones for yourself, so a little trial and error is called for here.

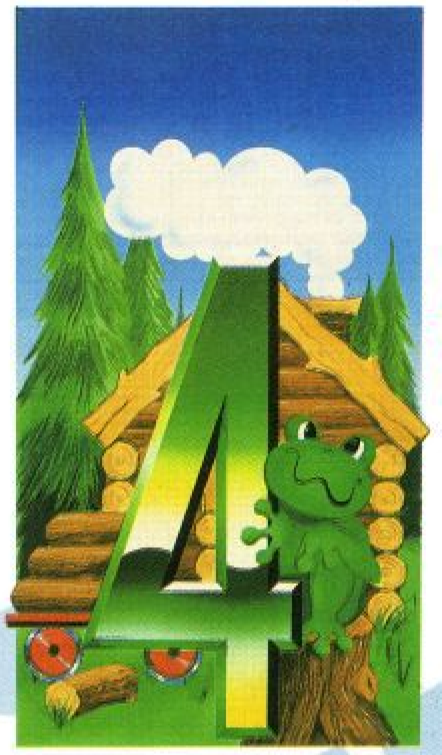
Above all, Moontorc is great fun. It'll certainly hook you from very early on and, for the price, it has to be one of the best offerings on the market right now. If you like your swordplay with a little strategy thrown in for good measure, then make sure you get hold of this one soon.

Jim Johnson

		ROUND-UP	
NAME	Moontorc		
FROM	Atlantis	PRICE	Cassette only £3.99
88%	87%	89%	
GRAFFIX	SONIX	PLAYABILITY	VERDICT









A Whole Lot Of Fun

Look out kids, Europress is back with a new dimension in learning as Fun School 4 hits the streets.

The Fun School tradition of computer-aided education has been with us for years and, since its very first outing, has proved to be a total success with parents and children alike.

Each release is awaited with baited breath and each new development has met with the critical acclaim it so rightly deserves.

In this age of ever-changing teaching patterns, it is becoming increasingly difficult to keep up with educational trends but, true to form, Europress' latest set of releases making up the Fun School 4 series, have all been developed in conjunction with educationalists, to adhere to current National Curriculum guidelines.

As a result, each package, whether it be for rising 5's or top Juniors, forms a truly invaluable piece of software, for use both in the classroom and at home.

Take all that on board, and add an extremely large dollop of fun on top, and I think you'll agree that the new Fun School series looks set to become every bit as successful as its prdecessors.

Targeting three different age groups, each package in the series has an instantly recognisable character, which should become firm favourites with the children. In the Under 5s package, Teddy the Bear sits through all of the programs with the child, while Freddy the Frog helps out with the puzzles and lessons for the five to seven years olds.

For the seven to 11 year age group, the excellent character of Sammy the Spy pops up time and time again to add the fun to the serious learning curve.

Starting off at the beginning, the under fives package introduces six separate, colourful and easy-to-use programs to stimulate the children while they learn.

Teddy Paint encourages the child to create pictures using circles, triangles, squares and many other objects, to make playground, picnic and seaside scenes. Some of the results of the program are truly amazing and will certainly give the child a lot of joy, when the results are viewed.

House and Garden helps to develop an understanding of the names of colours and parts of the house. With rising difficulty levels, this program really coaches the child through the learning process.

In Addition, the child must count all manner of objects, with correct answers rewarded by the teddies going out to play. Simple addition is also catered for in high difficulty levels, to stretch even the brightest child.

Teddy's Books also helps out in word recognition, as the child is asked to point out which book Daddy Ted is reading. Picking out which book is missing from the shelf will give the child a rewarding sequence, whilst encouragement is given to try again if the question was answered incorrectly.

Getting aboard the Fun Train is an excellent introduction to simple reading vocabulary, where the child must match pictures and,

later on, words with pictures, to develop recognition.

Last on this superb first package, is Teddy D's Karaoke, allowing the child to sing along with eight popular nursery rhymes. On the higher difficulty levels, the child can tap out the tunes on the keyboard, thus enhancing keyboard skills during the fun.

A superb outing all round, Fun School 4 for the Under Fives is designed to encourage and develop the child's skills at all times making it an essential aid to the learning process at this all-important age.

Moving on to the second package in the series, Fun School 4 for the five to seven year old age group provides some excellent insights into mathematical, typing and recognition problems.

Shopkeeper, the first program in the offering, introduces the child to values of coinage, playing the part of the shopkeeper and having fun selling goods to customers, all the while adding and subtracting figures.

In the Library, the mixed up books must be rearranged into alphabetical order, starting with initial letters and working through to full titles and authors of the child's favourite books. As Freddy pops up again and again, the child will certainly enjoy this trip to the library.

Opposites is a program designed to help the child learn new words by matching opposites. Starting with simple three and four letter words, more difficult words are introduced in later levels to expand vocabulary greatly.

Outpacing the crocodile is the aim of the game in Typing, which introduces the child to typing single letters to start with, before advancing on to groups of letters, words and, ultimately, fully punctuated sentences. As the hungry crocodile advances, typing has never been more fun.

In the Log Cabin, children must solve entertaining maths sums to help Freddy build his cabin. Starting with addition, this program also covers subtraction, multiplication up to the 12X tables and division.

The last program in this suite, Basketball, lets the child work out number and letter series in the gym! Early levels test simple alphabetical series, while later stages tackle number multiples to really get the child's mind working.

As an aid to educational concepts, this package cannot come more highly recommended. Stretching the child's mind as it does, this suite of programs makes an excellent choice to expand on earlier outings in the fields of maths, writing and recognition.

The presence of Sammy the Spy in the 7 to 11 year old package ensures a collection of learning programs which children will come to love and want to tackle time and time again.

The package consists of six challenging and fascinating educational games, each developed to help children progress within key stage two of the National Curriculum. Featuring hilarious animation and attention-grabbing sound effects, the help screens and clues, included in each game, ensure that children can always deal with the questions and tasks involved.

The first game, Desert Dates, helps the child to learn important historical dates by cracking open the stones of the pyramid. As the child progresses, he/she will be able to pinpoint each event in history to its century (levels 1 & 2), decade (level 3) and, finally, to its precise year (level 4). A superb offering which has instant appeal.

Spy Quiz tests the child's spelling, maths skills, science, geography and general knowledge via an amusing, multiple choice, trivia quiz, guaranteed to stimulate and educate.

In Proportions, fractions, decimals and percentages are dealt with, through entertaining questions such as "what proportion of spies is wearing hats?", with the difficulty levels increasing through the levels to really test the child's mind.

Exchange Rates, an extremely topical subject, allows the child to get to grips with European monetary units, presenting conversion problems to deal with, as well as comparative values later on.

Sammy the Spy's flight times are in question in Timetable. To start with, simple addition and subtraction is required to work out the flight times, while later levels include more complex series of sums, to fully stretch the child and help Sammy to catch his plane.

The final program in this series, Spy Travels, introduces the child to world geography, as you zoom around the world looking at oceans and continents. As the child progresses, he/she must then seek out countries, rivers and cities to guide an aeroplane to cryptically-described locations.

All in all, a totally comprehensive educational aid to the curriculum based teaching subjects for the seven to 11 year old age groups, and a package that should seriously increase the child's interest in and attention to, the learning process.

Each of the three separate packages features brilliantly animated sequences and superb graphics to grab the child's attention straight away. The excellent sound effects complement the programs throughout and should leave the child eager to try again.

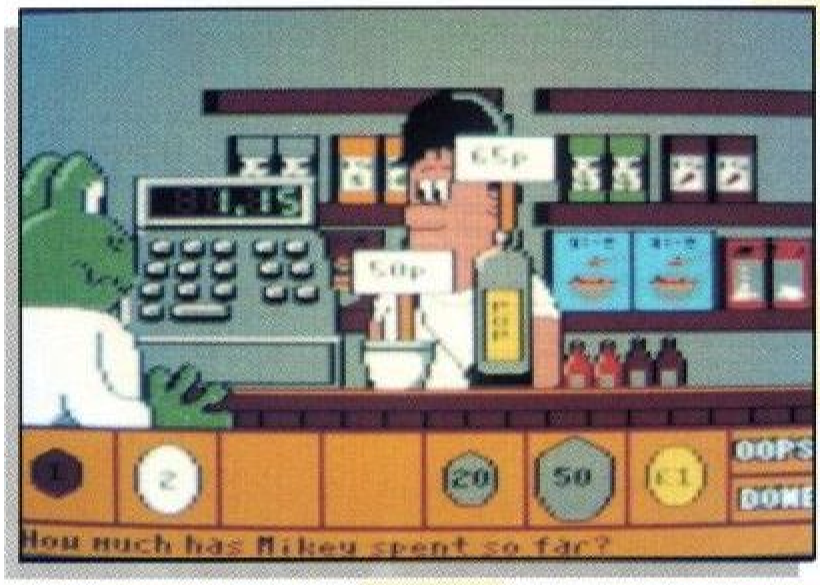
Correct answers are always well rewarded, whilst incorrect answers lead to more help and encouragement for another attempt.

Quoted as being "the best home educational software there is," all I can say is that, whoever said that has extremely sound judgement. Whatever I have outlined here cannot do full justice to this superb suite of programs and, I would strongly recommend that you look at the Fun School 4 packages for yourself to see the full quality of the product.

From what I have seen however, the Fun School 4 series should prove to be every bit as popular and successful as the earlier releases, all of which have enjoyed phenomenal sales figures.

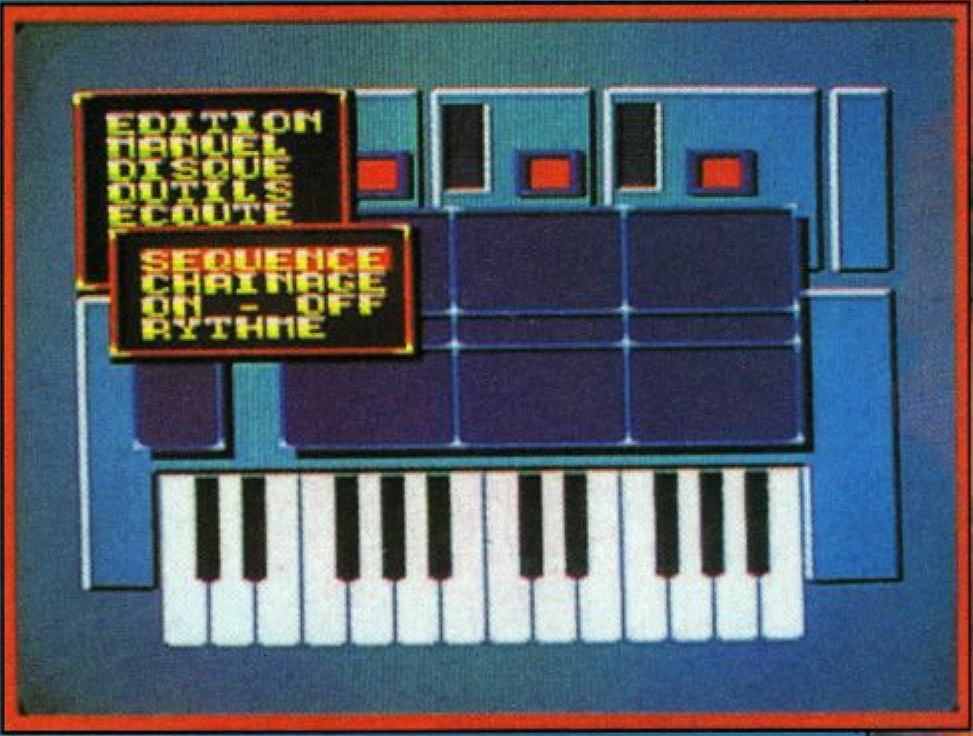
Millions of satisfied customers around the world cannot be all wrong, so try them for yourself and see what you have been missing.

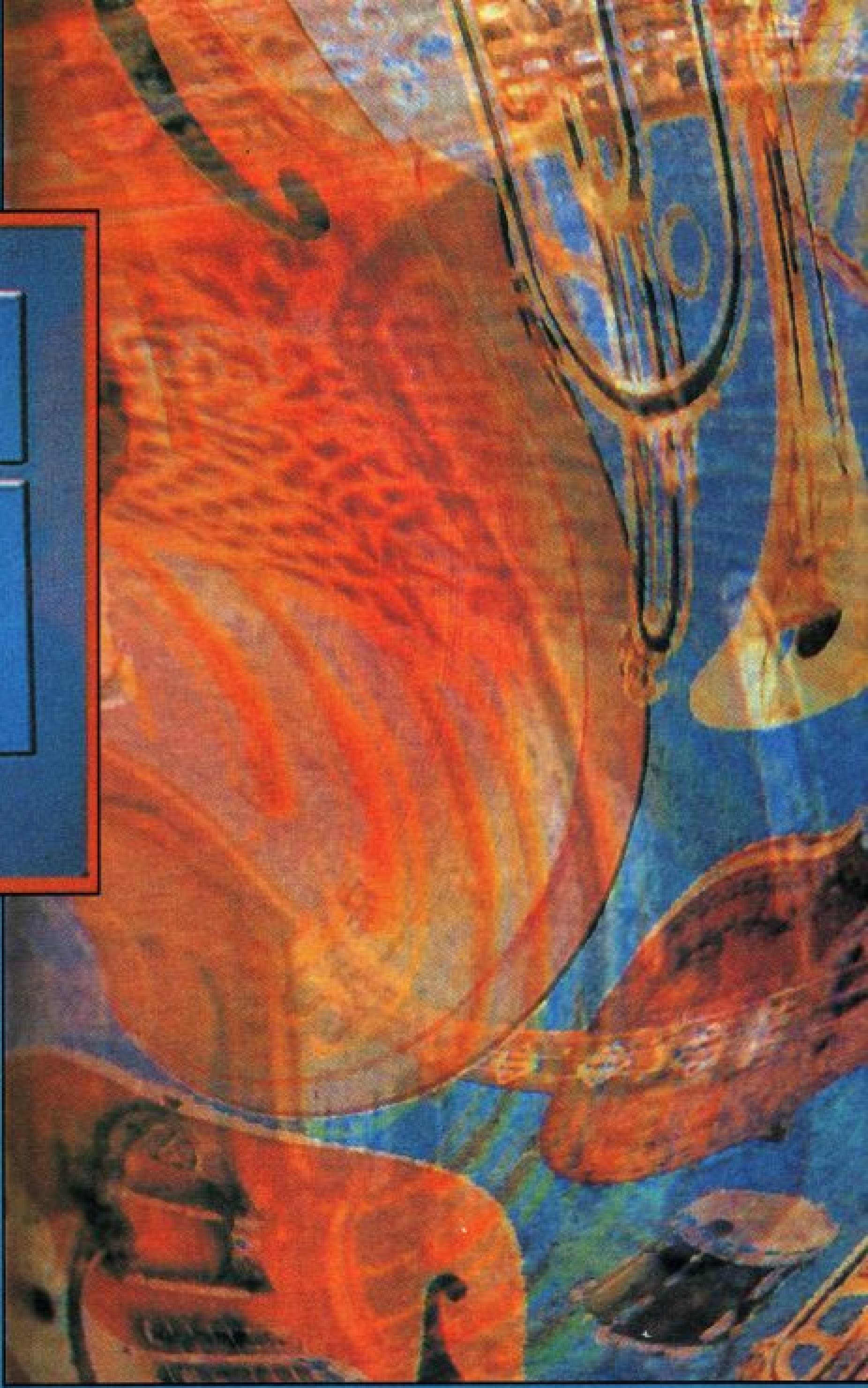
John Taylor



Fun School 4
Cost:
Disc £16.99 each
Cassette £12.99 each

Europress Software
Europa House
Adlington Park
Macclesfield SK10 4NP
Tel: 0625 859333





EQUINOX

Make music like you've never made it before on your Arnold, courtesy of Ubisoft.

If you are already over the ripe age of ten years old, then you've got an awful lot of catching up on the likes of Mozart and Schubert to do. Having said that, you've got to start somewhere on the road to musical success and you won't get a much better start than by kicking off with this masterpiece from Ubisoft.

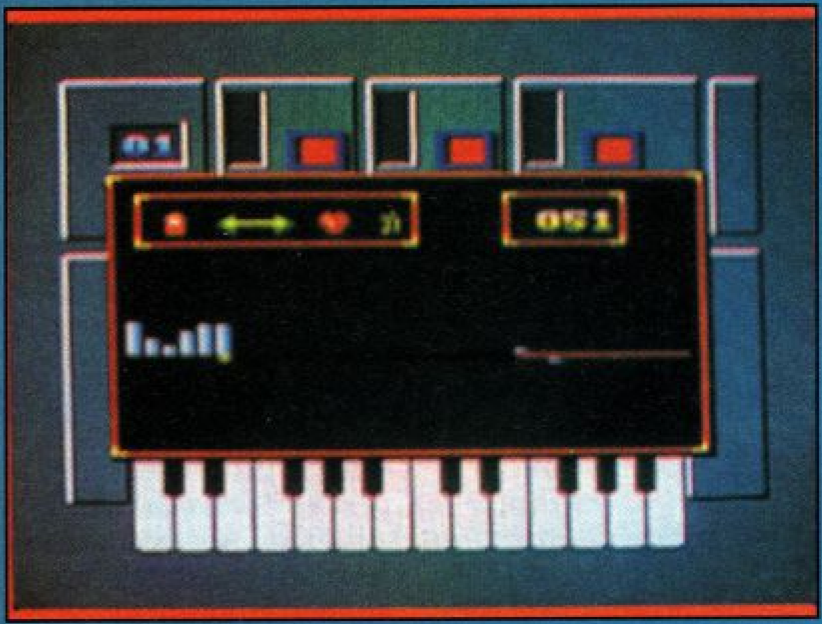
Designed with both musician and non-musician alike in mind, all you need to do is follow the precise instruction manual, and it won't be too long before you are composing your own hit singles or lilting classical pieces.

You don't believe me? Well, all I can say is that, it only took me a couple of hours to get a fully rhythmic melody, with percussion accompaniment, off the ground. And I am tone deaf! It really is that simple.

Ok, so a quick glance at the menu and the multiple references to sound envelopes, cutting and attaching assemblies may send your mind reeling. However, at all times remember that the manual has been put together in a totally logical manner, allowing you to get a grip on the basics to start with, before moving you on from fundamentals, to creating fully working pieces of music.

Your best bet to start with, as it says in the manual, is to actually listen to one of the pre-recorded pieces of music included with the Equinox program. There are three in all, ranging from classical through to experimental, each with a different rhythm, tempo and sound.

Obviously, as you scan through the sequences on show with these tracks, you will notice that an awful lot of hard work has been put in to create the overall assembly of different sounds.



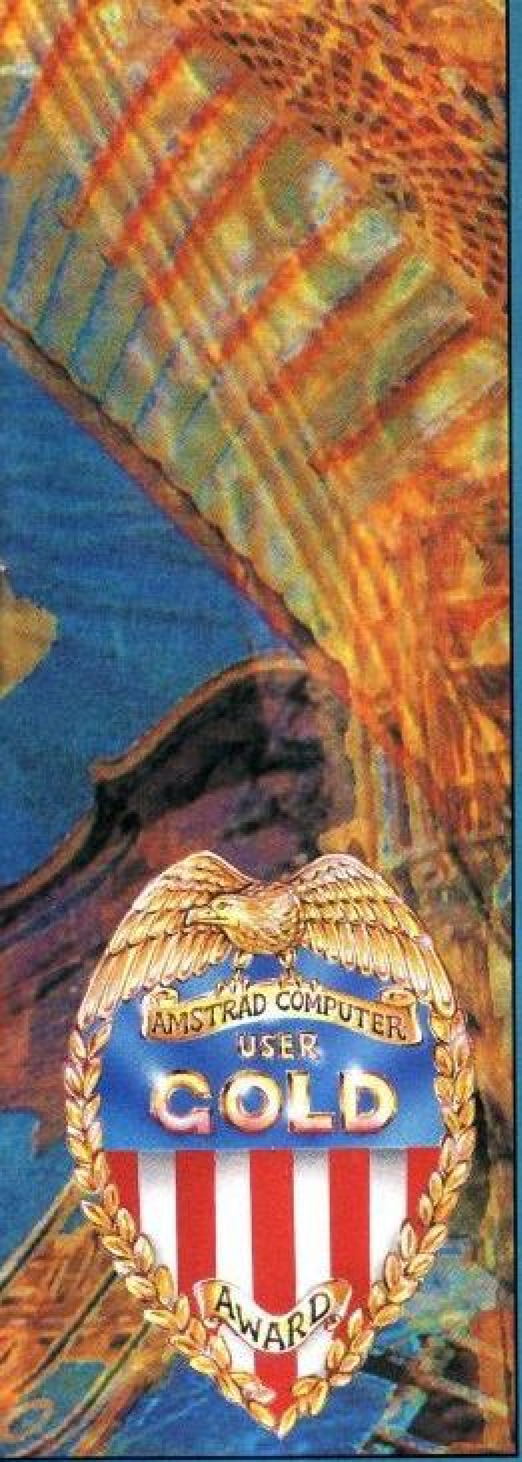
Now what you must do, is try to take each sequence of music in turn. When looked at individually, the music becomes much less like a totally foreign language and more like something even the most untalented musician could handle.

Once you have loaded one of the musical pieces, the best thing to do is simply to experiment. This can be easily done by choosing the Manual option from the main menu, which can be accessed at any time by pressing the Space Bar.

In manual, you can use the keyboard as a musical instrument, with the letters between TAB and RETURN as the white keys and the numbers as the black keys. Simply play around and make some noise.

Even if you don't come up with anything staggering to start with, you should be able to vent some frustration on the old keyboard at any rate.

The next thing to do, is



make a note of the sounds you have been producing, remembering the keys you have used in your melody, before transferring to Editing mode from the main menu.

Now all you need to do is place your chosen sounds within the sequence display, much as the original piece was written, and keep referring to the Listen to Sequence option to see how your work is progressing.

Now, this really is taking Equinox at its simplest, but as a place to start, you really can't beat it. Once you have got your main sounds in place, using the short cut keys to choose octaves for the sounds, your next step is to see about cutting in a percussion beat to go with your music. Done that? Right, how about a few backing sounds to fill out the melody?

This is where the three columns in the sequence come in, allowing you to fit in three very different simultaneous sounds, giving rise to the full musical sound which is impossible to achieve from the CPC's usual monophonic keyboard.

If you have got this far, you will realise that working with Equinox really is not as difficult as you first imagined. On top of that, it really is rewarding to hear your first mini-composition being replayed to you through the speakers.

Get hold of a blank data format disc and you can start saving your early efforts, which you will probably cringe at later on, when you have fully mastered the program.

Remember however, that you must not only save the music itself, but also the sounds, enabling you to have both the visual display on the screen and the audio effect.

Without this, you would not be able to go back and rework your masterpieces into something more palatable later on.

Like all pieces of composition, you will need to keep in mind what your final goal is, making it easier for you to add more sequences, to an incredible total of 20. However, if you work on channels separately, you should be able to keep going with the flow.

For instance, once you have worked out the main melody of your tune, carry it straight through to the end, whether it fills out 1 or the full 20 sequences. Once that is done, you can listen to that as you progress with the accompaniment and fill in the spaces as you go.

Obviously, it is going to take you a fair old while to come up with anything to compare with the classical Dido track, which comes with the program, but listen to it, watch the sequences carefully as they scroll past, or study them individually, and you will soon learn the secret of composing.

In terms of musical output, Ubisoft's Equinox can produce results previously unheard of on the CPC. By using the stereo speakers on the Plus machines, you can utilise sound coming from either side and/or from both, to create truly astounding sounds.

On top of that, the ability to try out the sounds first on the manual keyboard certainly helps to get you in the swing of things, before you actually start noting things down for real.

Being able to take everything one sequence at a time, and the ability to listen to your music from any stage, be it the beginning or somewhere near the middle, also gives you complete freedom to do whatever you like and change whatever you like until you are completely satisfied with your work.

Getting the hang of simple composing, however, is only the beginning. Once you have got to grips with the program, your next step is the creation of sound envelopes proper. Changing frequencies, volume and noise envelopes will help to produce truly professional results.



There is even something on this brilliant program for those who have run out of fresh ideas, namely the Driver file on side B of the disc, which contains Equinox sound routines that can be rejoined with your own octets.

In short, Equinox is a program that is literally packed with surprises, many of which will astound you when you come across them as you progress.

Those of you out there who like to throw themselves into an offering without much preamble, will certainly have to read the first chapter of the manual to get started but, even so, you should still be able to create something to your liking.

However, for real success stories, I suggest you take time out to study the text carefully, allowing you to fully grasp the sheer scope of this brilliant program for yourselves.

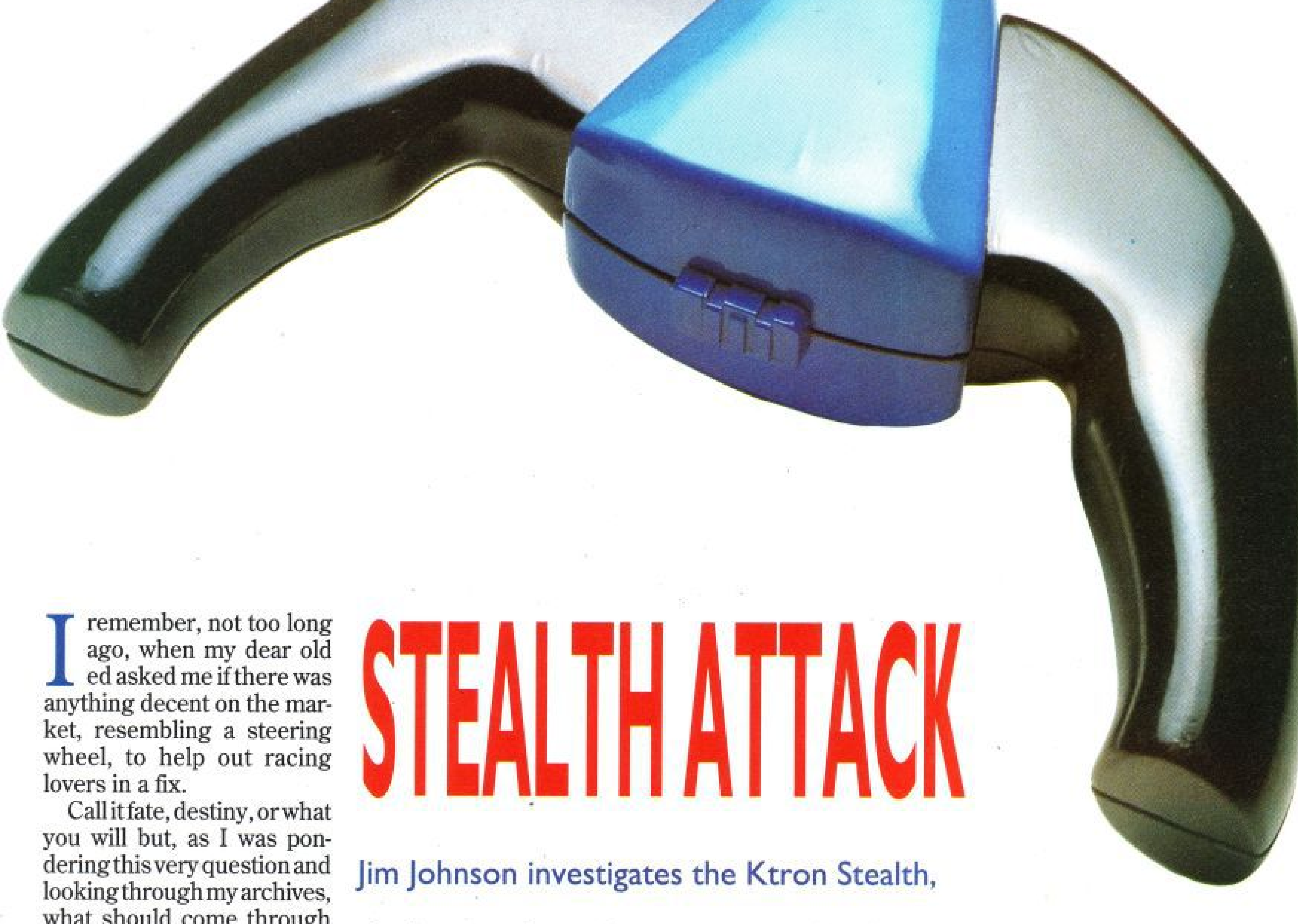
Remember, only through hard graft can you become a genius and, even though Ubisoft has taken much of the grind out of your progress, you will still need to understand the rudiments of the programs and their functions, before you can create fully blown masterpieces, to compare with the work supplied.

Take your time and you should soon find that your work becomes a true joy and, while you're about it, Equinox should also help you to become fully acquainted with headecimal notation, as well as all those frightening sound terms we looked at in our ACU music series.

Learning to play music should, above all, be fun and with this superb offering from Ubisoft, that is exactly what it is. You won't believe what you are capable of until you have tried out this beauty and then, when you have, you won't believe your ears!

Jim Johnson

ROUND-UP			
NAME	Equinox		
FROM	Ubisoft	PRICE	Disc only £30.99
89%	98%	95%	TNT
GRAFFIX	SONIX	PLAYABILITY	VERDICT



STEALTH ATTACK

Jim Johnson investigates the Ktron Stealth, the latest in hi-tech games control gadgetry.

I remember, not too long ago, when my dear old ed asked me if there was anything decent on the market, resembling a steering wheel, to help out racing lovers in a fix.

Call it fate, destiny, or what you will but, as I was pondering this very question and looking through my archives, what should come through my door but Merthyr Tydfil based Ktron's latest test model of the Stealth games controller.

Ok, so at a first glance it doesn't look like a conventional steering wheel but, let me assure you, you won't get much closer in terms of playing power than this novel device.

Of course, ergonomics (don't you just love that word?), played a major role in the construction of the Stealth and, as soon as you get your hands on this little beast, you'll understand how thumbache could well be a thing of the past.

You can't really call the Stealth a joystick, as it doesn't have one, but that doesn't stop this gadget from being one of the most comfortable and user friendly controllers on the market.

So how do you control it? Simple. Depending on whether you buy the left-or righthanded version, one of the hand levers is designed to pivot, multi-directional power at the flick of your wrist.

The two-handed grips give extremely accurate firepower and, with the two fire buttons placed within easy reach on the underside of the unit, blasting or racing for extended periods has never been more comfortable.

A little stiff to start with, you might like to wear this device in on the race games before using it for blasts requiring more subtle movements though, as with most joysticks, the durable microswitches do soften with use, allowing for excellent control on all manner of games.

Obviously, the Stealth is designed with aircraft simulators in mind, but that shouldn't stop you trying it out on all of your fave games. You certainly won't be disappointed.

If I have one small criticism to make about the controller, it is that the hand grips, or the unit as a whole, is a tad on the small side. However, seeing that I have the size of hands more usually seen on a blacksmith, and that most joysticks are designed with the younger market in mind, this should not cause too much of a problem for the majority of users.

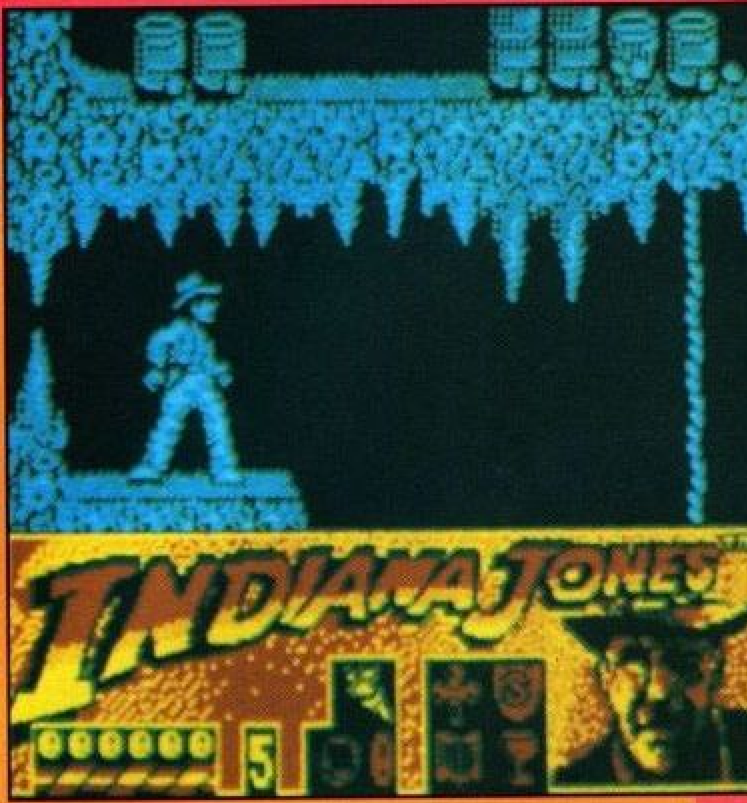
All in all, the Stealth is a novel approach to games controlling and it is certainly more than just a gadget, which seems to be the in thing at the moment. Looking like a yoke, the Stealth is an extremely powerful piece of equipment to have on your side during any battle.

No longer do you have to worry about stickers not sticking onto desktops, or grappling to reach the fire buttons during crucial moments of the chase. For all round durability, firepower and user friendliness, you'll need to go a long way to better the Stealth and, at an incredible £14.99, the price will take some beating as well.

Take one out for a test drive when you next visit your computer shop and get to grips with the excellent Stealth as soon as you can.

Jim Johnson

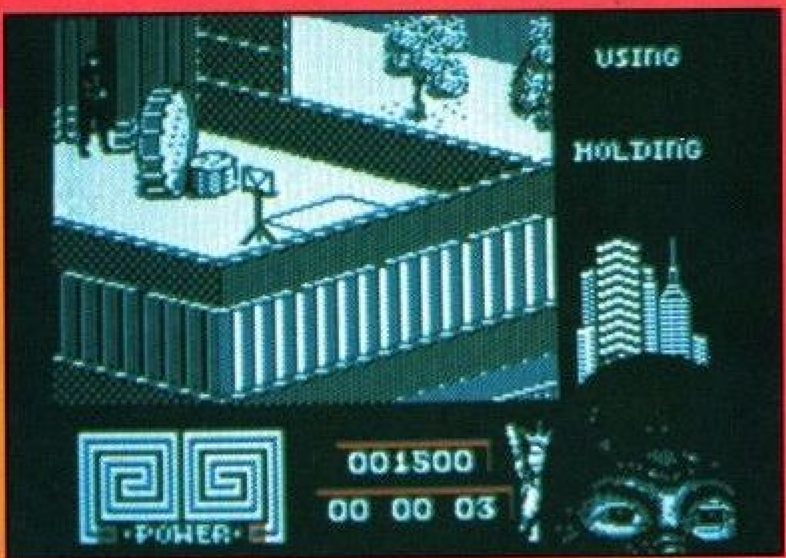
The Stealth
Cost £14.99
Ktron
Unit 3
Berlie Centre
Merthyr Tydfil
South Wales
CF48 2SR
Tel: 0685 722509
ACU Rating 92%



SUPERHEROES

Following on from the success of Heroes, dare you take on this awesome foursome?





Heroes was a first rate success for Domark, so you can't really blame them for wanting another bite at the cherry with this sequel compilation. Besides, who cares when the sequel is as good as this little beauty, containing, as it does, four best-selling games in their own right.

First up on this epic collection, is the Bond offering. The Spy Who Loved Me. Remember when this one first came out? This is one of those games that seems like a bit of a doddle first time around but, what you don't realise is that, after you've completed it, you're hooked and you want to do it all over again to top your high score.

Featuring some great car and boat chases, as well as somepuzzlingcodecracking, this one will soon become a firm favourite.

Next on the list is the cracking Ninja 2 blast, which sees you whizzing through time to modern day Manhattan, to take on your arch enemy Shogun Kunitoki. Finding your way through the labyrinthine levels is problem enough, but don't forget the evil henchmen along the way. Chop them down first, otherwise you'll find yourself on the bandstand again, with the whole fight ahead of you.

Superb Ninja action to set your pulse rate racing, and an excellent offering to keep you busy for hours.

If you didn't get Indiana Jones and the Last Crusade the first time around, then make sure you don't miss it this time. Superb adventure from the very first drop into the caverns, on the hunt for the Cross of Cornado, to the final fight for the Holy Grail, this is one blast to keep you on the edge of your seats for a long, long time.

Use your whip wisely and be sure to check your ammo supplies in this superb offering.

Last on the list, is the epic Strider 2 outing, which sees you setting out on a desperate bid to rescue an important world leader from the clutches of the dastardly aliens.

Setting down from the helicopter, you must use all of your skills and agility to avoid the alien lasers, before moving on to take on the big boys at the end of each action-packed level.

Plenty to see and do, and more blast action than you can handle, dare you miss it?

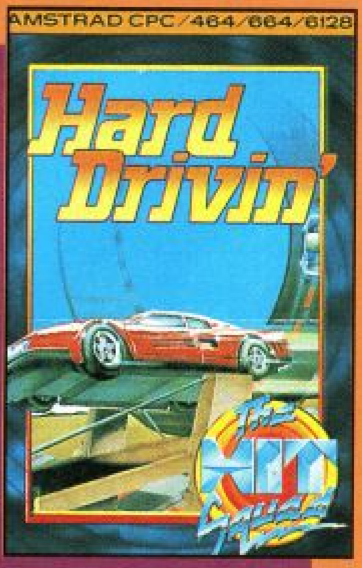
Each of these blasts is brilliantly put together, featuring superb graphics and realistic sound effects. Basically, if you like your action rough and tough, then you'll have to go a long way to beat this collection. Grease up your trigger finger, but don't forget to keep your brain in gear as well, as you'll need both to survive these awesome outings.

Jim Johnson

ROUND-UP			
NAME	Superheroes		
FROM	Domark	PRICE	Disc £19.99 Cassette £14.99
89%	87%	92%	
GRAFFIX	SONIX	PLAYABILITY	VERDICT

Budget Basement

A slightly abridged basement this month, but there is still more than enough action to be going on with.



HARD DRIVIN'

Time to get your 3D specs on folks, as this best-selling, rough and tumble race blast hits the budget scene. If you've played this one before, then you certainly won't forget the superb 3D graphics and the totally brilliant instant slo-mo replay option.

In fact, I liked it so much, I used to attempt the worst possible blow outs, just to get it replayed in glorious slow motion!

Included in this epic outing are the two tracks, speed and stunt, both of which are designed to test different driving skills.

If speed is your game, then opt for the first and boot your car up to blistering speeds to beat the fastest lap scores. For best results, try it in automatic transmission first, to allow you to get a feel for the car, then do the gear changes yourself for some heavy duty action.

If thrills and spills are more your scent, then the Stunt Track is going to blow your mind. The three main stunts featured, are the Bridge Jump, the Loop-the-Loop and the Bank. Timing is essential on all of these obstacles, as is speed.

For example, speeds in excess of 60mph will send you spinning off the track at the bridge, and into a spectacular crash. However, if you are too slow, you won't make it across. You have been warned.

Again, try it first in automatic, then get to the gears for some tight cornering action. Do what you must to save time and avoid traffic ahead to get the high scores. If you do well enough, you may even qualify for a head to head with the awesome computer car, the Phantom Photon.

Crashing means instant disqualification, so you'll have to be very, very good to succeed. However, don't worry too much if you don't, as watching your spin-offs in slow-mo replay can be just as rewarding as winning the laurels. Great graphics, and a belter of a game. Don't miss it.

ROBOCOP

Here's another real classic that should have you drooling with delight the moment you slap it into your datacorder. You should all know the storyline by now but, if you have had your head in a sack for the last couple of years, you basically play the role of Patrolman Murphy, gunned down in Detroit and transformed into a titanium coated killing machine to patrol the streets.

Set over nine superbly crafted levels, your task is to piece together the fragments of your shattered memory and discover the truth about your near fatal gunshot wounds. To start off, your first duty is a regular patrol in Detroit, where nasty villains will try to thwart your every move.

Get through this little encounter, and your next task is to intervene as a woman has been attacked. Using your robot controlled eyesight, you must attempt to shoot the villain without hitting the hostage. Remember what happened in the film here? Nasty!

Level three takes you on your second patrol, before the fourth outing sees you trying to piece together photofit parts to match the original photograph of your 'killer'.

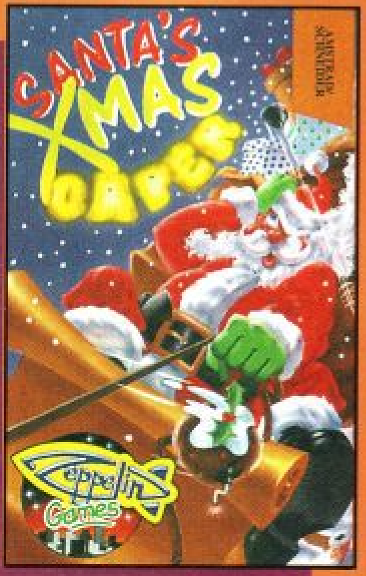
Succeed, and you will now know his name. On level five, you receive information which leads you to the rest of the heavily armed gang in the drugs factory.

After this blistering shoot-out, you confront Dick Jones at OCP, but are prevented from killing him due to Directive 4, which prevents you from acting against a senior officer of the company.

As a result, you are disarmed and must battle it out barehand with the awesome ED209 robot. Level's seven and eight see you on the run from the criminals, before the final showdown at OCP sees the sacking of Jones and your chance to pick him off. Be careful though, as he has the President hostage and, killing him would not look too good on your record.

There you have it, a brilliantly conceived game, bursting with action and featuring some stunning graphics and sound effect. If you like your action tough, then this has to be the game for you.





SANTA'S XMAS CAPER

This little blast was originally released last year but, if you missed it and you are already lamenting the passing of yet another Christmas, then pick up this gem and I'll guarantee your spirits will rise immediately.

What's the plot? Well, the dastardly, and extremely mischievous, pixies, have spiked Santa's pudding, laying him out and leaving him unable to deliver all of the presents to the children around the world.

This, of course, is where you come in, taking up Santa's reigns and guiding his sleigh through the night skies to keep Santa alive in the hearts of the little children.

Set over three excellent levels, your first job is to get the sleigh up into the sky and get out of Lapland. However, the naughty pixies are determined to stop you and have gathered a host of spare presents to throw at you and slow you down.

All the while, you must collect the Santa faces and wine glasses as you fly, as you must use these later as the presents.

Get past the first pixie assault, and you find yourself in the Atlantic Ocean, desperately dodging radar waves. You see, the American scientists do not believe in you, and are searching the skies to track down the person responsible for the hoax.

If the radar beams catch you, then everybody will believe that Santa is a fake, so be careful. Again, you must collect the Santa faces and wine glasses as you go, so keep up your concentration, or it could be all over.

If you have managed to make it this far, then you can now move on to the real thing, delivering the pressies! Flying over the rooftops, you must avoid the chimneys, aerials and last year's presents, to make perfect drops, by pressing the Space Bar.

Here again, the pixies are out to get you, by throwing flying presents at you. To blow them up, you can use spare presents from your own sack, so get blasting. Watch out for the plum puddings, though, as they will take a couple of hits before disintegrating.

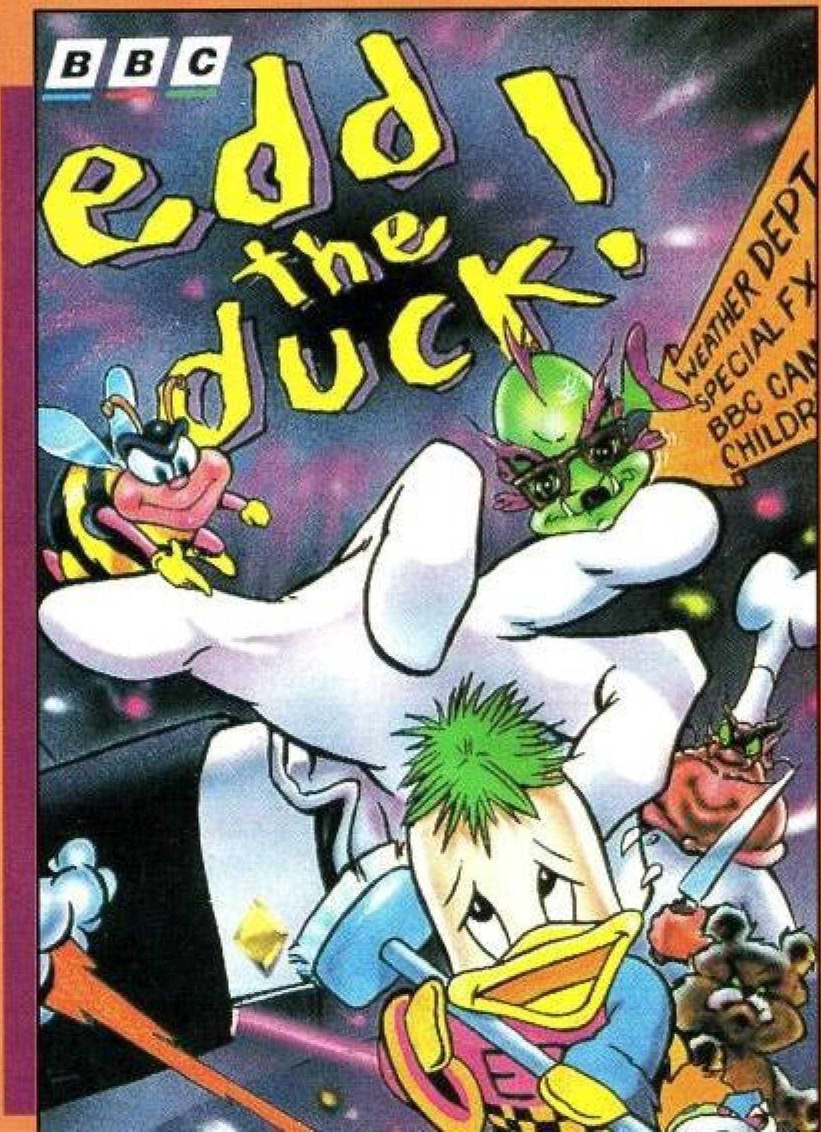
In all, you have six lives and, you just have to succeed, otherwise the pixies will be free to create mischief all the year round. Do your best and keep Santa alive.

Featuring some smart graphics, Santa's Xmas Caper is an absolute joy to play and should keep you glued to your screen for a fair old time, as you battle for Santa's reputation. Well done, Zeppelin, this looks like one of those blasts you can keep re-leasing every year for the Festive Season, with great success.

EDD THE DUCK

Here we go with yet another full price success story being converted onto the pocket money shelf. Edd the duck is on a meteoric rise to stardom and your task is to keep it that way, despite the constant meddling of Wilson the butler and the ugly Arglefrags.

Taking in three separate departments within the BBC TV building, you must keep little Edd safe from harm to reach ultimate stardom, but it ain't going to be easy.



To help you on your upward route through the bowels of the BBC, the clever Special Effects boffins have developed a special snowball shooter, which Edd can use to freeze his opponents for short periods of time. Use it wisely to lay out the bad guys and get set to move very quickly if you want to succeed.

Fighting your way through the adverse weather conditions on level one, your task is to collect 20 stars, allowing you to progress. Get through that little hurricane, and your next stop is the zany atmosphere of the special effects centre.

Anything can happen here, and it usually does so, if you want to keep climbing, keep throwing the snowballs and make sure you grab the stars as fast as you can.

If you manage to make it to the Children's TV episode, you're doing exceedingly well. However, there is no time to get complacent as Wilson plays his trump card, in a desperate attempt to stop you.

Remember, you only have four takes to complete the whole mission, the On Air lights are flashing and the audience is buzzing with anticipation. This is your big chance to take Edd to the top, so you'd better not blow it!

Jam-packed with excitement, Edd the Duck is, above all, fun to play. It may not be the most riveting platform jumper you have tried but, for the budget price, it is good, clean fun and well worth adding to your collection.

SLIGHTLY MAGIC

Remember this one? Well, you may not, as this is the



first time it has been released as a title in its own right. Making it's debut appearance on the Code Master's Cartoon Collection last month, this is one little gem that certainly deserves an independent outing.

Basically, you are Bigwiz the wizard's apprentice and, due to your almost total lack of magical skills, you have totally obliterated Bigwiz's laboratory and sent the Wiz himself packing through a warp.

Oooer! What now! Well, using your semi-perfected skills, you must travel through the various levels collecting up Bigwiz's equipment, spells and books, transporting them back to the laboratory before the bad guys can get to use them.

Of course, your magic will help you out, but don't rely on it because, after all, you are only slight magic and, just when you thought you were getting on top of things, your spells might just go awry and leave you high and dry in hostile territory.

This one is great fun to play, featuring all of the usual Code Master' style and great graphics. There is certainly plenty to see and do as you pick your way through the strange lands.

If you like your adventure tongue in cheek, then this is the offering for you. Brilliantly crafted and guaranteed to hook you faster than you can say Abracadabra!

Jim Johnson

Hard Drivin'	**Hit Squad**	**£3.99**	**88%**
Robocop	**Hit Squad**	**£3.99**	**90%**
Santa's Xmas Caper	**Zeppelin**	**£3.99**	**82%**
Edd the Duck	**Impulze**	**£3.99**	**78%**
Slightly Magic	**Code Masters**	**£2.99**	**86%**



THE FIRST PC TO BREAK THE SOUND BARRIER.

We gave the Amstrad PC5286™ all the best features you need for serious business use and great games entertainment.

Then we gave it features which were unheard of.

16MHz SPEED – NO COMPROMISE

We built the PC5286™ around an ultra-fast 16MHz 286 processor, so you'll have all the speed you need to get through the business of the day, with enough time to play around.

A massive 1 megabyte of RAM, 40 megabyte hard drive and 1.44 megabyte 3.5″ floppy disk drive combine to make best use of this computing power – the PC5286™ is built to perform.

SUPERB VGA GRAPHICS

As you'd expect, the PC5286™ also offers state-of-the-art graphics with a 14″ high quality VGA monitor which will display up to 256 colours from a palette of over a quarter of a million.

Terrific for business applications, but all that colour is wasted on games if you've got no sound capability.

TWIN SPEAKER SOUND

So we gave it a sound system that makes it unique.

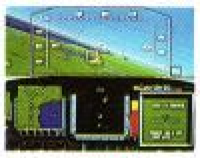
Its fully 'Ad-Lib' compatible soundcard with twin external speakers gets you closer to the action, bringing a whole new dimension of enjoyment to your PC.

THE COMPLETE SYSTEM

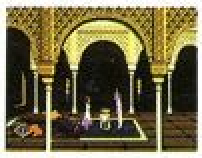
The Amstrad PC5286™ Family Pack comes with everything you need for both work and play. Microsoft Works, the market-leading integrated business software package, is included together with three of today's latest and greatest games. Also supplied are a fully featured keyboard, mouse, MS DOS 3.3™ and a precision analogue joystick. To top it all, for ease of use, the PC5286™ comes with 'Counterpoint,' the outstanding user-friendly graphical interface.



LINKS



F-15 STRIKE EAGLE II



PRINCE OF PERSIA



MICROSOFT WORKS

So at an incredible £799* inc VAT, the PC5286™ Family Pack has to be a sound proposition.

AMSTRAD

FOR FURTHER DETAILS RING **0277 262326** OR FILL IN THE COUPON BELOW

I like the sound of the PC5286™. Please tell me more. ACU3

Name ____________________

Address ____________________

____

__________ Postcode __________

Coupon information may be kept on a database. This may be passed to your Amstrad dealer, if you object please tick box ☐

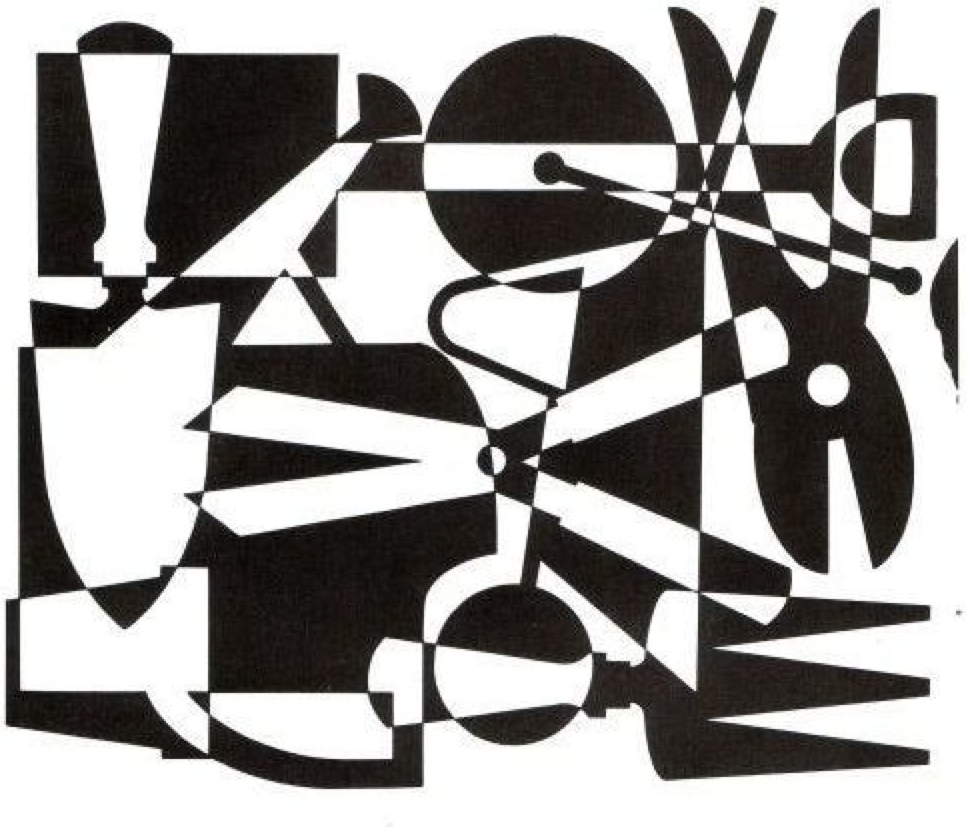
Send to: Amstrad plc, PO Box 462, Brentwood, Essex CM14 4EF. Tel: (0277) 262326.

*R.R.P's correct at 1/1/92, may change without notice. All software subject to licence. Products subject to availability. Microsoft Works and MS DOS are trademarks of Microsoft Corporation.

Available from selected branches of Allders, Dixons, John Lewis, Rumbelows, Rymans, Wildings and over 3,000 registered Amstrad dealers.

THE SHAPE ROUTINE

Glynne Davies helps put the design factor firmly in its place as EasyDraw continues.



It is often a requirement that a certain shape is repeated to form a pattern or that certain shapes can be called up when needed. This routine allows you to create a shape and draw that shape as many times as you want at different magnifications. The information for the shape is stored within a string. Relative drawing methods are used to place the shape on the screen, this means that a line is drawn using the previous graphics cursor position as the position 0,0. i.e. 20 pixels right of the last position and 15 pixels down. By using relative drawing methods a simple magnification factor can be introduced allowing the drawing of the shape in many sizes. When you have designed a number of shapes you can save them to disc or tape to be loaded at a later date. Each file you produce can have up to 99 shapes and there is no limit to how many files you can produce. This system is useful for creating your own character sets of symbols or for simply repeating a shape with different sizes.

Considerations

1) The Shape must be easy to create.
2) A position move must be available during the creation of the shape to develop shapes which are not continuous lines.
3) The standard Easydraw2 method of line drawing, moving, fixing and setting the jump size will be used.
4) The shapes will need a Save and Load routine.
5) Relative methods will be used as these can easily be times by a number to create a magnification of the shape.
6) A filename extension will be added to the filename to help identify a shapes file (.SHP).
7) Room for 100 shapes will be reserved, this can be reduced if additional memory is required. (This could use up 100 times 256=25600 bytes of memory if all strings are full, this is unlikely but if it happened the program would run out of memory).

How to use this routine

Press S for theShape and enter a shape number, the number is a reference by which the shape will be known. To start the shape memory press E for Elastic banding, this start position is stored in a string. Each time you press F to Fix the line, the co-ordinates will be stored in the string. You can move without drawing a line by pressing M for Move, the new co-ordinates are only stored in the string when you press E again. When the shape is complete press the Enter key.

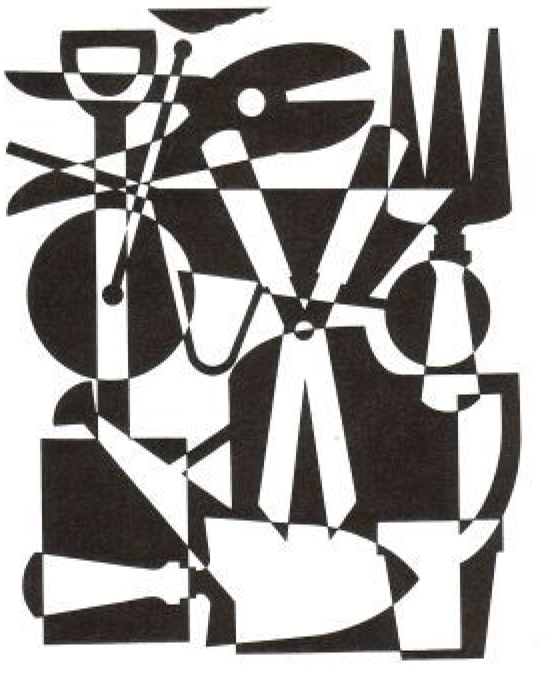
To see the result of your design, place the cursor at a start position and press Z for Zoom, enter the shape number and the magnification and your shape will be drawn as you created it. For the magnification factor I have used integer numbers so a value of 10 magnification is the original size, magnification 1 would be a tenth original size and 80 would be eight times the original size.

Variables

shapes$(n)	The shape memory string
highshape	The highest number shape in memory
shp	The chosen shape
newshape$	A replacement string for the shape$(n)
pointer	Position in the string of the first : (bar)
drwmov	Draw or Move drwmov=1 Draw drwmov=0 Move
xold	Co-ordinates of the last position (horizontal)
yold	Co-ordinates of the last position (vertical)
xnew	New horizontal co-ordinate
ynew	New vertical co-ordinate

A look at the Listing

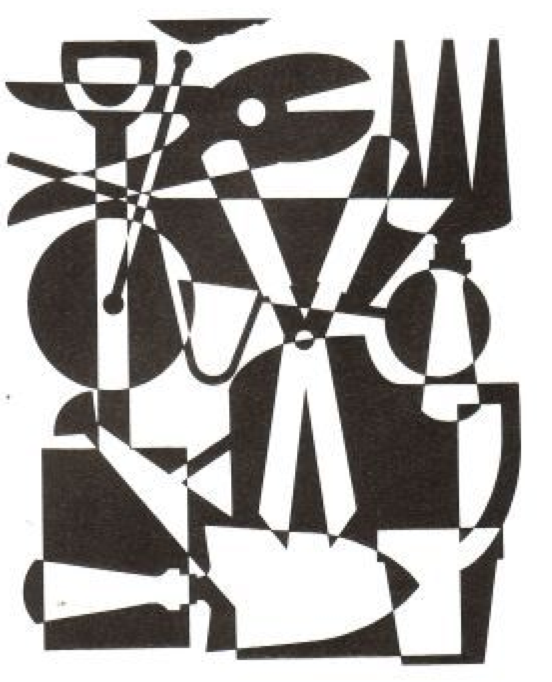
Line 51 Dimension the shape memory to 100 strings.
Line 350 Press S to start Shape build.
Line 360 Press Z to Zoom shape, place shape at cursor.
Line 370 CTRL+K to Save (KEEP) shapes on disc or tape.
Line 380 CTRL+A to load (ADD) shapes from disc or tape.
Line 8090-8110 E for Elastic band, F to Fix, M to Move and J to change Jump size.
Line 8180-8200 Replace the spaces in the memory string with : (bars) as spaces can be lost when saving.
Line 8240 Check length of memory string.



Line 8250-8270 Update memory string with two co-ordinates and draw or move variable.
Line 8380-8600 Extract the x and y and draw or move variables from the string newstring$, by searching for the bar (:).
Line 8580 Draw a line or move relative to the last point. (DRAWR or MOVER)
Line 24700-24760 Save Shapes routine.
Line 24820-24860 Load Shapes routine.

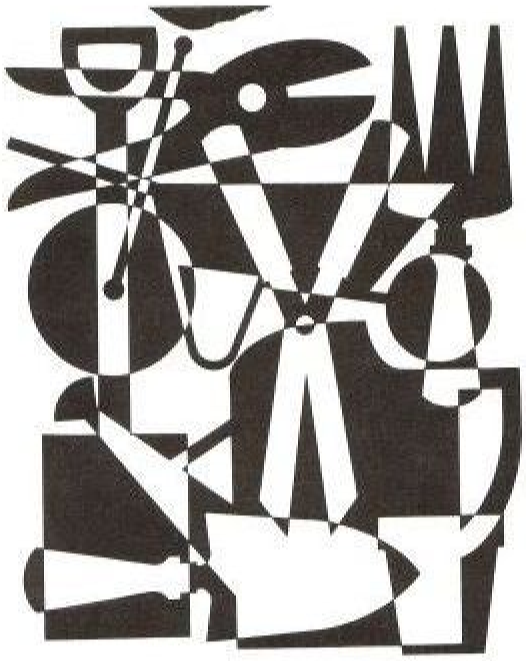
The Listing (Ensure EASY5 is in memory before typing in the listing below)

```
51 DIM shape$ (99)
350 IF INKEY(60)=0 THEN GOSUB 11000:mde$="SHAPE":GOSUB 12000:GOSUB 8000:GOSUB 11000:GOSUB 12000
360 IF INKEY(71)=0 AND highshape>0 THEN GOSUB 11000:mde$="ZOOM":GOSUB 12000:GOSUB 8290:GOSUB 5070:mde$="MOVE":GOSUB 12000
370 IF INKEY(37)=128 AND highshape>0 THEN GOSUB 24000:GOSUB 24700:GOSUB 24100:REM Press CTRL+K to Keep shapes
380 IF INKEY(69)=128 THEN GOSUB 24000:GOSUB 24800:GOSUB 24100:REM Press CTRL+A to Add saved shapes
8000 REM shape memory
8010 shp=0:WHILE shp=0
8020 xx=12:l=2:ask$="Enter the shape number (up to "+STR$(highshape)+" chosen)":GOSUB 3000:shp=VAL(ans$)
8030 info$="E Elastic F Fix M Move J Jump and Enter to finish"
8040 LOCATE 12,1:PRINT "E elastic band F to Fix M to Move Enter when finished"
8050 WEND
8060 IF shp>highshape THEN highshape=shp
8070 shapemem=0:shape$(shp)=" "
8080 WHILE shapemem=0
8090 IF INKEY(53)=0 AND ele=1 THEN a=xf:b=yf:set=0:GOSUB 4500:GOSUB 8240:REM Press F to Fix and set up shape$ with new co-ordinates
8100 IF INKEY(38)=0 THEN GOSUB 11000:GOSUB 12000:ele=0:REM Press M to move
8110 IF INKEY(58)=0 THEN GOSUB 11000:set=0:GOSUB 8240:mde$="ELASTIC":ele=1:GOSUB 12000:REM Press E to switch on Elastic band F to Fix a line
8120 IF INKEY(45)=0 THEN str=0:xx=12:ask$="PLEASE ENTER THE JUMP LENGTH":l=3:GOSUB 3000:jump=VAL(ans$):GOSUB 12000:REM Press J to change jump size
8130 GOSUB 5000:REM Cursor movement
8140 IF ele=1 THEN GOSUB 6000
8150 IF INKEY(18)=0 THEN shapemem=1:REM Shape complete
8160 WEND
8170 shapemem=0
8180 FOR n=1 TO LEN(shape$(shp))
8190 IF MID$(shape(shp),n,1)=" " THEN newshape$=newshape$+"¦" :ELSE newshape$=newshape$+MID $(shape$(shp),n,1)
8200 NEXT
8210 shape$(shp)=newshape$:new shape$=" "
8220 info$=" "
8230 RETURN
8240 IF LEN(shape$(shp))>240 THEN shapemem=1:PRINT CHR$(7):RETURN
8250 first$=STR$(x):second$=STR$(y)
8260 IF ele=1 THEN lin=1 ELSE lin=0
8270 shape$(shp)=shape$(shp)+ STR $(lin)+first$+second$
8280 RETURN
8290 REM Redraw shape
8300 IF highshape=0 THEN RETURN
8310 shp=0
8320 WHILE LEN(shape$(shp))<1
8330 xx=12:l=2:ask$"Please Enter the shape number (up to "+STR$(highshape)+" defined)":GOSUB 3000:shp =VAL(ans$)
8340 WEND
8350 xx=12:l=3:ask$"Please Enter the Magnification":GOSUB 3000:mag=VAL(ans$)
8360 mag=mag/10:REM Reduce magnification 10 is normal 1 is one tenth and 99 is 9.9 times
8370 GOSUB 5070:MOVER 0,-10
8380 newshape$=shape$(shp)
8390 pointer=INSTR(newshape$,"¦")
8400 newshape$=RIGHT$(newshape $,LEN(newshape$)-pointer)
8410 drwmov=VAL(newshape$)
8420 pointer=INSTR(newshape$,"¦")
8430 newshape$= RIGHT$(newshape$,LEN (newshape $)-pointer)
8440 xold=VAL(newshape$)
8450 pointer=INSTR(newshape$,"¦")
8460 newshape$=RIGHT$ (newshape$, LEN(newshape$)-pointer)
8470 yold=VAL(newshape$)
8480 WHILE INSTR(newshape$,"¦")>0
8490 pointer=INSTR(newshape$,"¦")
8500 newshape$=RIGHT$ (newshape$, LEN(newshape$)-pointer)
8510 drwmov=VAL(newshape$)
8520 pointer=INSTR(newshape$,"¦")
8530 newshape$=RIGHT$ (newshape $,LEN(newshape$)-pointer)
8540 xnew=VAL(newshape$)
8550 pointer=INSTR(newshape$,"¦")
8560 newshape$=RIGHT$(newshape $,LEN(newshape$)-pointer)
8570 ynew=VAL(newshape$)
8580 IF drwmov=1 THEN DRAWR mag*(xnew-xold),mag*(ynew-yold),1:ELSE MOVER mag*(xnew-xold),mag*(ynew-yold)
8590 xold=xnew:yold=ynew
8600 WEND
8610 RETURN
12035 IF LEN(info$)>0 AND d=0 THEN LOCATE 12,1:PRINT info$
24700 xx=12:l=8:str=0:ask$="Name the shapes or Enter to Return":GOSUB 3000
24710 IF ans$=" " THEN RETURN
24720 OPENOUT ans$+".shp":REM open a channel to the disc or tape
24730 PRINT # 9,highshape:REM Place the number of shapes on disc or tape
```



```
24740 FOR n=1 TO highshape
24750 PRINT # 9,shape$(n)
24760 NEXT
24780 CLOSEOUT
24790 RETURN
24800 xx=12:l=8:str=0:ask$="Enter the shape name or Enter to Return":GOSUB 3000
24810 IF ans$=" " THEN RETURN
24820 OPENIN ans$+".shp":REM Open a channel from tape or disc
24830 INPUT # 9,highshape:REM Find out how many pieces of data are available
24835 FOR n=1 TO highshape
24840 INPUT # 9,shape$(n)
24850 NEXT
24860 CLOSEIN
24870 RETURN
```

After you have typed in this month's routine together with EASY5 save the listing as EASY6 and run the program, develop some shapes by pressing S and entering a number and then Zoom them into place using Z and the shape number. To create shapes successfully develop a grid as a guide before attempting to design a shape, if you are making a new character set create a box as one shape and use this to keep all the other characters the same size. Have fun.



Next month is the last in the present series. The only vital routine missing is a printout routine which is next month's theme together with a complete listing to date for those of you who have missed a month. You can now draw your masterpieces and after next month print them out. Here to finish off this month is a quick reference chart of all the commands of Easydraw2.

EASYDRAW2 QUICK REFERENCE CHART

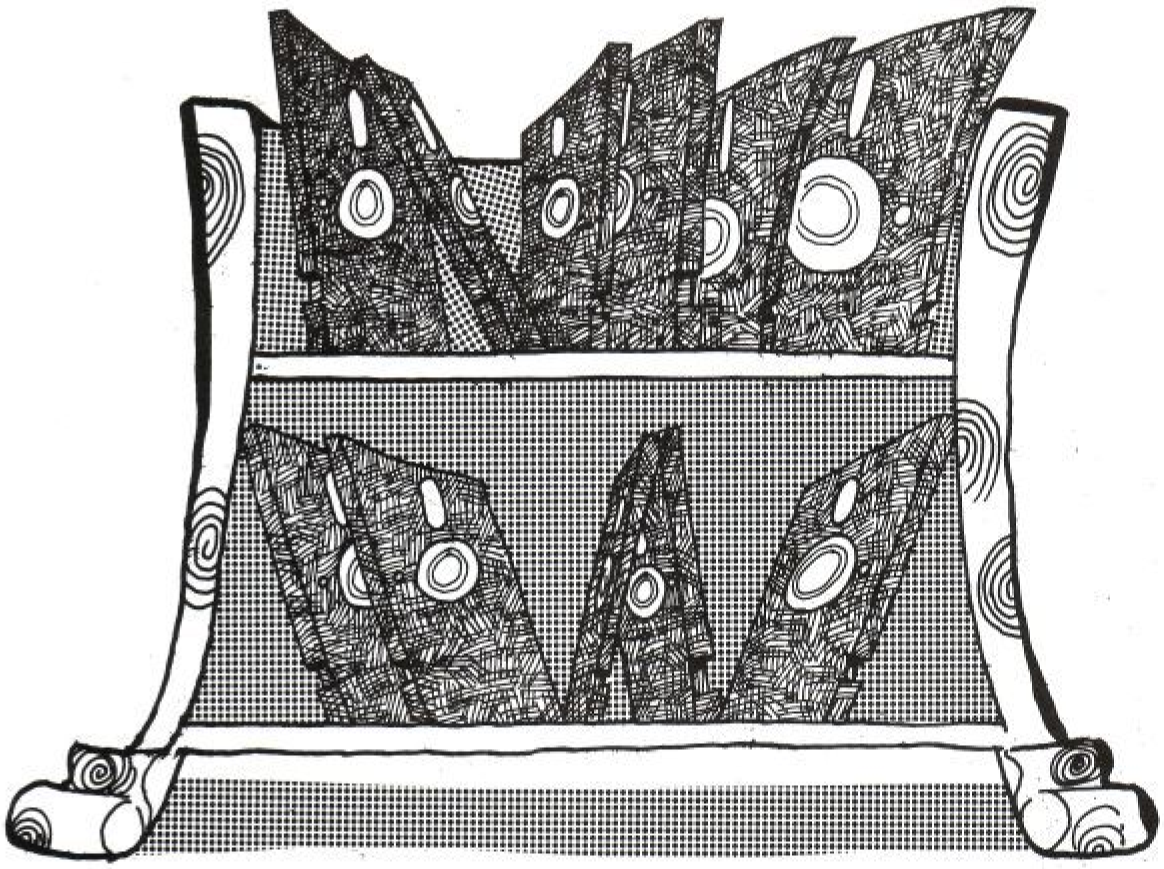
Arrow keys to move the cursor

CTRL+R	Return cursor to the centre of the screen
CTRL+F	Change Foreground colour
CTRL+B	Change Background colour
CTRL+D	Toggle x,y position display
CTRL+SHIFT+W	Wipe clean the screen
B	Set Beam on (Line drawing when cursor moves)
M	Move cursor without leaving lines
E	Elastic Banding on (Shows position of line)
F	Fix in position (multi-purpose to Fix in position, lines, circles, text, arcs and Rubber)
J	Set the Jump size in pixels for the cursor
T	Text Input also change text size
A	Arc
	+ Increase radius
	- Decrease radius
	< Rotate anti-clockwise
	> Rotate clockwise
	K Keyed Input of radius
	S Mark the Start of the Arc
	F Mark the end of the arc and draw the arc
	Cursor keys to move centre position
R	Rubber. Move to the required position and press R, use arrow keys to select box and remove detail contained in the box by pressing F
C	Circle. As Arc for radius
P	Paint an enclosed area with a pattern
S	Develop your own shape library
	Use E, M, J and M when designing the shape
	CTRL+K Save Shapes to disc or tape (KEEP)
	CTRL+A Add Shapes from disc or tape (ADD)
Z	Select a Shape and magnify (ZOOM)
CTRL+P	Print a drawing/picture to an Epson type printer

Catalogue, Save and Load Picture File

CRTL+C	Catalogue the Disc
CTRL+S	Save a picture/drawing
CTRL+L	Load a picture/drawing

PD Scene



Adventures abound in this month's public domain round-up, along with some excellent utilities to fill out the gaps in your own software collections.

Welcome once again to our monthly round-up of all the news worth knowing of what has been happening within the PD Scene. It has been a bit quiet this month on the new program front, due no doubt to the librarians still trying to catch up with orders after the post-Christmas rush, but a couple of our staunch supporters still managed to keep me supplied with news for you all.

Debby Howard of Adventure PD has been at it again. She just keeps getting bigger. Before she belts me with her handbag, I had better explain that I'm talking about her library and of her adding yet more adventure discs to her already considerable collection. The latest discs to arrive at Chez Sunnyside are AMS 13 & 14. They both run under Amsdos (Basic) and include the following:

13.) *Caves 90, Once A Knight, Cave Capers 7 3D Construction Kit Demo.*

14.) *Get Me To The Church On Time, Sound Seeker, The Terror of Innsmouth 7 Mansion.*

As per usual, you can obtain each selection on one side of a disc for one pound plus your own disc and a stamped addressed jiffy bag. Debby has also asked me to mention her full solution service for most of the commercial adventures - but as these aren't public domain, I'm not going to!

Data PD, run by Tony Kingsmill, have sent me a very interesting assortment of programs. I must mention that what follows here is not a specific listing of any particular disc but just a few examples of how varied a selection of different types of programs can be found by browsing through Data's stock list. Take the BBC Emulator for instance. This is not exactly a fully fledged emulator by any means, but it transformed my CPC sufficiently for it to bring back memories of a time gone by, when I spent a few hours every week at evening classes learning BASIC programming on the BBC. Recognised commands are CHAIN, CLS and *CAT (and don't forget the asterisk!), plus AMSDOS to return to - guess what? Tony's idea behind producing this bare bones emulation is to allow other users to add further commands and grad ually build it up to a fully working emulator. It is a nice idea and I hope it catches on.

Do you need a spreadsheet to keep tabs of your day-to-day finances but do not wish to pay for a full-price commercial product? Then Data PD have the answer in the shape of Home Accountant. This program only takes up 7K on the disc but it seems adequate at doing the job. How about letting your computer teach you the correct finger positions for all the chords and notes on a guitar? To become the next Eric Clapton (not guaranteed) you can try a program called Guitar. Also, if music is your thing, then check out Drumkit as well. Layout, or to give it its full title, Computer Aided Layout, is an

interesting program to aid you in planning the layout of a room, for instance. You can define the sizes say, of pieces of furniture, place them in the predefined room and then move them about on the screen until the ideal layout is achieved. This is a lot easier than physically humping the furniture around until it all fits!

Telcost is a telephone call cost calculator with a nice big screen design that leaves you in no doubt as to how much that call is costing you. If you would like a visual reminder to help you achieve smaller telephone bills, then this is the one. Have you ever needed a program to help you design printed circuit boards? No, neither have I but PCB Designer can do this, it is available from Data PD and to me this is the type of program that is the epitome of why the public domain exists. The programmer obviously wrote the program because he did need such a utility and being proud of his efforts but realising that it had about as much chance of commercial success as a snowflake in hell, decided to donate it to the public domain instead, in the hope that there would be somebody else out there who could also make use of it or even improve it by adding extra features. A lot of the 'established' PD titles have grown over the years in exactly this way.

For a full list of all the programs available (now over 50 discs), send an SAE to Data PD or better still, send a blank disc and SAE and Tony will put on it for you, not only his full stock list but also a free demo and a free game, 2 Player Tetris. One final note, Data PD (via David Nagle) are no longer able to afford PD cassettes, so it's disc only from now on.

And now, a little snippet for all the Modem users who read these pages. Have you ever logged-on, dashed along to the file area, down-loaded some juicy looking files and then found to your horror that you could not use the files until they had been unpacked? Even worse, you discovered that the files had been packed with an archiver such as LZH which is not generally available on the CPC? Well fret no more, because there is a new unpacker available for all CPC and PCW owners called LHZ-CPM.LZH. That snappy title does in fact hide a very useful program for uncrunching all files that have a .LZH extent. It is very easy to use, it works and you can download it from Preston-Ros BBS, to name but one.

As usual, I'll finish off with a list of the libraries who have contacted me and sent in examples of their programs and/or a catalogue. If you are a public domain library or you wish to recommend one or even a particular program, then I'll be delighted to hear from you. You can write to me at PD Scene, C/o Amstrad Computer User, Sunnyside Cottage, Carluddon, St Austell, Cornwall PL26 8TY.

The above librarians will be happy to send you a stock list but please include a stamped self-addressed envelope.

For those of you with a Modem, you can try down-loading some free public domain programs from the CPC file areas on:

Preston Ros 0772 652212 (24 hours)

Arcade Fantasy 0533 376056 (8pm-8am)

Have fun, Bob Adams.

3D PD LIBRARY
44 Echline Grove,
South Queensferry,
West Lothian EH30 9RU.

ADVENTURE PD.
10 Overton Road,
Abbey Wood,
London SE2 9SD.

DARTSMA PD LIBRARY.
c/o Adam Shade,
47 Kidd Place,
Charlton,
London SE7 8HF.

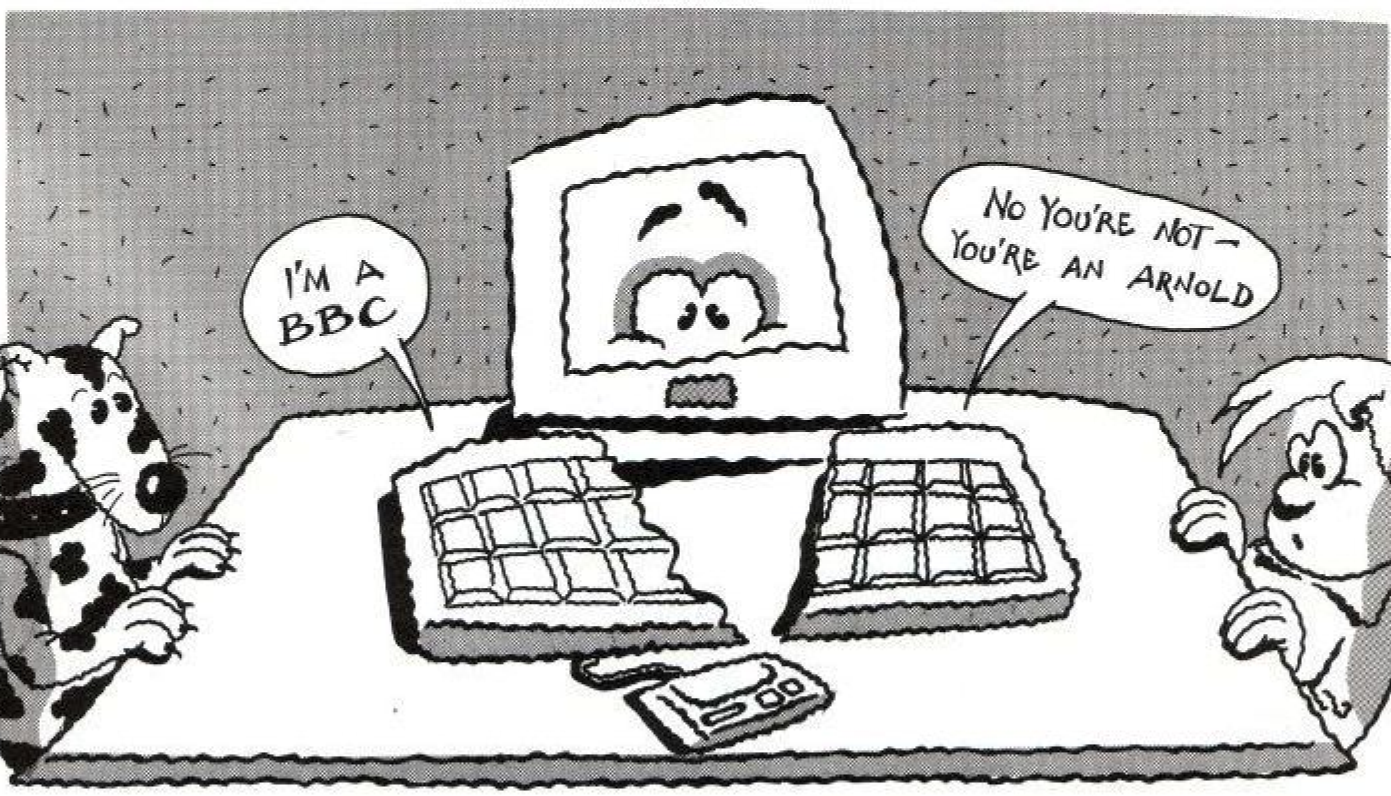
DATA PD LIBRARY.
202 Park Street Lane,
Park Street,
St Albans,
Herts AL2 2AQ.

EGERTON PD LIBRARY (Tape)
7 Linden Close,
Stafford,
Staffs ST17 9TH.

PENGUIN SOFTWARE
Ruxley House,
28 Mount Hermon Road,
Woking,
Surrey GU22 7UH.

ROBOT PD LIBRARY
2 Trent Road,
Oakham,
Rutland LE15 6HF.

SOUNDS LIKE PD
6 Keyberry Park,
Decoy,
Newton Abbot,
South Devon TQ12 1BZ



THE TECHIE BIT

More machine code madness courtesy of the Doc

We kick off this month by diving straight into a letter from John Arundel of Norwich:

"I own a 6128+ which I enjoy programming immensely. Having mastered BASIC some time ago I have now progressed onto learning machine code and would like to use it for a project I am currently working on.

The project is a simple educational game but I want the user to control it by moving an arrow around the screen and selecting one of several quite large icons. I have written the program in BASIC but the routine that moves the arrow is slow and jerky and spoils the effect of the high quality graphics which took a lot of time to design. The smoothest movement I achieved was using TAG and FRAME but this is painfully slow. Can machine code provide an alternative which is both quick & smooth, yet easy to use from within BASIC? Please help as I am hoping to use the finished program for my GCSE Computer Science project."

I'm only too pleased to help John! The assembly listing at the end will provide you with the smoothest, quickest arrow you're every likely to see:

Perhaps I should point out that the hash symbols (#) contained in the listing signify hex numbers and may need changing to ampersands (&) depending on your assembler (the ACU assembler uses &). Once you've assembled it, type CALL &7000 to initialise the routine – from now on, all you need to do is issue the RSX command |ARROW. An arrow should appear in the middle of the screen and can be moved with the cursor keys. The spacebar is used to 'select' something and will return you to BASIC when pressed, |ARROW will allow the arrow to be moved once more. IMPORTANT NOTE – The routine is only designed to be used in mode 1 (the mode requested by John).

Here are some useful addresses to help you interact with the routine:
&719E – Xpos = X position of arrow
&719F – Ypos = Y position of arrow
&71A0 – KeyUp = Number of key used to move arrow up
&71A1 – Keydown = Number of down key
&71A2 – KeyLeft = Number of left key
&71A3 – KeyRight = Number of right key
&71A4 – KeySelect = Number of key used to select something

By POKEing values into addresses &71A1-&71A4 you can alter the keys used to control the arrow. The first two addresses are even more useful as they allow the BASIC program to determine the position of the arrow when the select key has been pressed e.g.:

```
10 |ARROW
20 X=PEEK (&719E)
30 Y=PEEK (&719F)
40 LOCATE 1,1:PRINT X,Y
50 GOTO 10
```

The two co-ordinates have their origin in the bottom left corner of the screen (0,0) with the top right corner having co-ordinates (77,47). The x value roughly corresponds to mode 1 character positions while the y value corresponds to half mode 1 character positions (4 pixels).

I think that's everything. I hope other readers find a use for this routine in their own programs, it really is worth trying. If you wish to use the ACU assembler to assemble the listing then simply start each line with a line number and an apostrophe, remembering to insert a [symbol on the line before the ORG statement.

Meanwhile, if you think a well placed machine code routine or two could dramatically improve your BASIC pride and joy then why not write in. Correspondence of any kind is always welcome.

Hex Education – part 6

Having taken a minor detour last issue to take in the delights of ACU's new assembler, we continue this time around on the road to machine code fullfilment. Last month's 'hex education' contained a couple of teeny errors. As many of you have probably already noticed, the line numbers in the first listing got a bit mixed up. They should go from 10 to 180 in increments of 10, with lines 20-130 being assembly instructions and line 140-180 being BASIC. The good news is that these errors have been fixed on the instruction sheet which comes with the assembler disk. Sorry for any inconvenience!




```
10 ' [
20 ' ORG &7000
30 ' LD A,1
40 ' LD B,2
50 ' ADD A,B
60 ' RET
```

Assemble the above program (load the assembler, type in the listing, execute the command |ASM) and see if you can guess what it does. Bear in mind that lines 10 and 20 are there for the benefit of the assembler and that line 60 returns control to BASIC when the program has finished. To run it (once assembled) type CALL &7000. Register A (the accumulator) is loaded with 1, register B with 2, and the two numbers added, with the result being stored in the accumulator. The only snag is that we can't directly see the contents of registers from within BASIC in order to confirm this. One way around the problem is to add the following line to the program:

```
55 ' LD (&7500),A
```

Assemble & run the program once again. Line 55 places the contents of the accumulator into memory address &7500 just before the program finishes. Now all you have to do is type PRINT PEEK (&7500) and lo and behold the number 3 appears!

We can take this idea one step further by altering the program lines:

```
30 ' LD A, (&7502)
35 ' LD B,A
40 ' LD A, (&7501)
```

The end result of this is that A and B are loaded with the values stored at locations &7501, &7502 respectively, added, and the final total placed in &7500 (as before). One interesting point is the reason for using LD A, (&7502) followed by LD B,A instead of a single, more logical LD B, (&7502). The answer, quite simply, is that there

isn't any such instruction! Many operations can only be performed with the accumulator, so you can begin to see why this register is in such demand. Anyway, back to the plot.

Assemble the program but before executing it, POKE some values into locations &7501 and &7502 e.g. POKE &7501,10:POKE &7502,20. Now type CALL&7000 as usual and PRINT PEEK (&7500) to reveal the unsurprising answer of 30. Exciting stuff I'm sure you'll agree. The largest answer the accumulator can store (being only 8 bits in size) is 255, so what happens if you add 255 and 1? Well go on, try it! The answer is zero because the register (like all others) will simply cycle round. Thus, 100+200 becomes 44. As we will learn later on in this series, a special flag is set whenever this type of event occurs.

The bizarre program below pushes lots of numbers around in a fairly illogical manner. Work through it and try to determine what value will end up in location &7500. Now type it in and execute to test your answer.

```
10 ' [
20 ' ORG &7000
30 ' LD A,1
40 ' LD B,2
50 ' LD C,3
60 ' LD D,4
70 ' ADD A,B
80 ' ADD 5
90 ' SUB A,D
100 ' LD B,D
110 ' LD D,A
120 ' ADD B
130 ' LD (&7500),A
140 ' RET
```

Constantly having to PEEK (&7500) may get a little frustrating so why not utilise the following little routine:

```
500 ' Print Accumulator:
510 ' LD B,100
520 ' CALL pa1
530 ' LD B,10
540 ' CALL pa1
550 ' LD B,1
560 ' pa1:
570 ' LD C,0
580 ' pa2:
590 ' SUB B
600 ' JR C,pa3
610 ' INC C
620 ' JR pa2
630 ' pa3:
640 ' ADD A,B
650 ' PUSH AF
660 ' LD A,C
670 ' ADD 48
680 ' CALL &BB5A
690 ' POP AF
700 ' RET
```

What it does is to print the contents of the accumulator as a three digit decimal number. Don't worry about understanding how it works (it isn't particularly complicated), simply realise that your program must place whatever value you wish to display into register A before it encounters the routine. For example, add the following line and execute the program. The number 123 should be displayed on the screen.

```
25 ' LD A,123
```

The ADD instruction can be used to the form the basis of a multiply routine. Afterall, when we multiply 8 by 7 all we really do is add 8 seven times (in fact most humans speedup the process by using a lookup table which they formed when a primary school). Below is the complete listing of a simple multiply routine, incorporating most of the techniques we've learnt so far.

```
10 MODE 2
20 MEMORY &6FFF
30 INPUT "Enter two numbers to multiply: ";X,Y
35 POKE &7500,X
40 POKE &7501,Y
50 CALL &7000
60 PRINT
70 GOTO 30
100 ' [
110 ' ORG &7000
120 ' LD A,(&7500)
130 ' LD C,A
140 ' LD A, (&7501)
150 ' LD B,A
160 ' LD A,0
170 ' loop:
180 ' ADD A,C
190 ' DJNZ loop
500 ' Print accumulator:
[insert liens 510-700 from previous listing]
```

To save space, the print accumulator routine has not been listed – simply add it on the end. Having typed it in, assemble it using |ASM and then type RUN. The only instruction that we have not yet discussed is that on line 190 - DJNZ label – which decreases register B by 1 and if the result is not zero, program execution jumps to the label. This makes it extremely useful for forming simple loops, B being used as a loop counter. With this in mind, try to work out why the routine would take longer to execute if given the numbers 5,50 as opposed to 50,5 – solution next issue.

Just to clarify a point that may have been causing some confusion, when a number is enclosed in brackets it refers to a memory location. For example, LD A,100 loads the accumulator with the value 100 whereas LD A,(100) loads the accumulator with the contents of memory address 100.

If you feel like some more practice then why not type in the assembly listing given below. Next month we'll take a look at how to deal with numbers bigger than 255. See you then.

THE ARROW

```
        ORG  #7000
rsx  :   ;
        LD   HL,work_space
        LD   BC,command_table
        CALL #BCD1
        CALL initialise
        RET
command_table:
        DW   name_table
        JP   loop
name_table:
        DB   65,82,82,79,215
        DB   0
work_space:
        DB   0,0,0,0
initialise:
        LD   HL,#E255
        LD   (new),HL
        LD   (old),HL
        LD   A,37
        LD   (xpos),A
        LD   A,32
        LD   (ypos),A
        RET
loop :   ;
        CALL #BD19
        XOR  A
        LD   (logic),A
        LD   HL,(old)
        LD   DE,store
        LD   BC,#30A
        CALL print
        LD   HL,(new)
        LD   DE,store
        LD   BC,#30A
        CALL save
        LD   HL,(new)
        LD   DE,cursorb
        LD   BC,#30A
        CALL printb
        LD   A,#B6
        LD   (logic),A
        LD   HL,(new)
        LD   DE,cursor
        LD   BC,#309
        CALL print
        LD   HL,(new)
        LD   (old),HL
left : LD   A,(key_left)
        CALL #BB1E
        JP   Z,right
        LD   A,(xpos)
        OR   A
        JP   Z,up
        DEC  A
        LD   (xpos),A
        LD   HL,(new)
```

listing to be continued next month

BINDERS!



The perfect way to store your growing collection of AMSTRAD COMPUTER USER. We have commissioned a top British manufacturer to produce this stylish and beautifully made binder especially for our readers which will provide an elegant home for twelve issues of AMSTRAD COMPUTER USER.

No more dog-eared magazines or frantic searching for that article you need from four issues ago! Your favourite magazine – where you need it when you need it.

Our binders are finished to the highest quality and feature AMSTRAD COMPUTER USER's title, gold-blocked on the front and spine.

Turn that pile of AMSTRAD COMPUTER USERs into a true collection!

And remember that an AMSTRAD COMPUTER USER binder makes the perfect gift for a fellow enthusiast.

The binders cost only £5.95 each which INCLUDES post packing and delivery throughout the U.K. [Please add £1.75 for overseas delivery.]

To take advantage of our offer, please fill in the attached coupon (photo copies welcome) and return it to us.

Your binder will be delivered within 28 days [U.K. Only]

KEEPERS!

TO: ACU MAGAZINE, PRINGLE STREET, BLACKBURN, LANCS BB1 1SA

Please send me ☐ ***Amstrad Computer User binders*** – I enclose £5.95 for each binder including VAT. postage & packing.

Readers outside the UK and Eire please add £1.75 for surface overseas mail.

Please make cheques payable to M.C.P.C. Ltd

ACCESS ☐ VISA ☐ ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐ Expiry date:..................

Name .... Signature..

Address ....

.... Postcode .... Tel No. ....

ANATOMY OF A GAME

What's in a conversion? Vic Barnes two-wheels it down to the South Coast to trace G-Loc's tricky path to the CPC screens, courtesy of the Images Workshops. Read on...

Fareham on the south coast, near Portsmouth, is the kind of place I could have spent a fortnight in, one afternoon. Sleepy it isn't – 'comatose' would be a better description. My trusty steed had delivered me there one grey, November Monday. It was difficult to imagine this essentially middle class and refined little town as the home of all-action computer games and a group of boisterous young programmers called Images.

Karl Jefferies, the dynamic 26 year old boss of the company, had offered ACU the opportunity for a rather special insight into the creation of an equally special game. With perverse pleasure, editor Chris Knight decided that my anti-shoot 'em up stance made me the ideal person to investigate. I suppose the theory was, that if I could be converted, then Images conversion of Sega's *G-Loc* would conquer the world!

Consisting of at least six freelance programmers working in the office at any one time, Images was started by Karl and two other programmers just over three years ago. An unspecified number also work from home. Current projects include, Sega's *Arcade Classics*, Taito's *Space Gun* and Sega's *G-Loc*. These games are all being converted for about half-a-dozen different machines.



IMAGES SOFTWARE. Just a few of the team. Karl Jefferies (front right) and Rob Hylands (centre).

The average age for programmers in the company is between 22 and.25, but Damien Stones who is converting Space Gun, by Taito, is only 18. He says the Spectrum version is just about finished and the CPC version will be completed by the time this is published. Having had a sneak preview of this one, I can tell you that the sprites are amazing and the monsters 'wicked' - in both the traditional and modern meaning of the word!

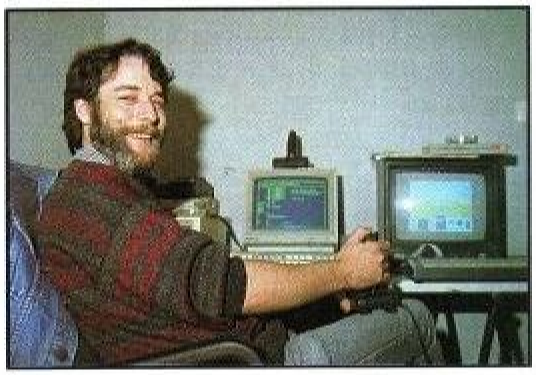
Unfortunately, the upwardly mobile Karl (don't mention Mutant Monty) was out wheeling and dealing with Nintendo and tying-up a contract to produce NES games, which was finalised just before I left. Well done Karl!

In consequence, I was delivered into the capable hands of ace programmer and founder member, Rob Hylands, who got his job with Images by walking into a Job Centre at precisely the right time!

Rob is a very affable, 30 year old Hampshire-ite, whose continuous smile fights a running battle with the bearded shrubbery that threatens to conceal it! Mostly, the smile wins – though I am not sure he needed me as a millstone around his neck for a whole day.

According to him, his best known work is probably *Super Wonderboy* though he did admit to having programmed *The Hunt For Red October*. Unlike the Soviet sub, he thinks about 3 copies escaped! In the meantime, Karl was responsible for *R-Type* and the Images crew put out *Ninja Spirit, Shadow Dancer* and *Flying Shark*. Not a bad track record.

When a game like G-Loc is to be converted, a number of independent software houses are asked by the producers and licence holders – in this case US Gold - to put forward a 'proposal' which consists of price; method of approach and the name of the programmer assigned. Apparently Images beat-off stiff (and not-so-stiff) opposition to win the contract. Rumour has it that certain software houses wanted to produce a 'top down', 2D conversion of a game whose immediate



Images Software – ROB HYLANDS programmer of G-Loc.

appeal lies in its 3D, 'virtual reality' effects. No contest really.

With the contract awarded to the most suitable 'house', US Gold then assign a producer (in this case, Steve Fitton) who works closely with the programmer in an attempt to produce as good a conversion as possible.

Originally a Sega coin-op game, the first task for a programmer is to get to a G-Loc machine and start playing the game. Rob had already seen a demonstration video of the action and eventually went into an arcade in Southsea to try it '. . .so I'd know what I was up against!' He admits his first reaction was, 'Oh my God!'

At this early stage, Karl calls in a team of graphic artists who begin designing loading screens, backgrounds and general graphics. Rob starts work by looking at his standard procedures so that he can modify and speed them up to execute some of the effects, techniques and characteristics unique to the original. All this preliminary work takes at least a month.

'We break the game down through the levels and find out exactly what



Images Software – DAMIEN STONES programmer of Space Gun.

sequences there are,' explained Rob. 'We then work out which ones we can emulate on the CPC.'

Each machine has different processors and therefore different problems. Some are more suited to a particular conversion than others. Naturally, 16-bit provides more scope, memory and versatility than 8-bit, but it really is quite amazing what can be achieved on a good old Arnold!

Rob's grin became just a little bit broader. 'There's been a lot of trying to get too much into a game recently. Stacks of rubbish on 'the front' and very little game! We aim to get the balance right... a nice little front sequence, but the major work devoted to the game itself.'

Very laudable and all very well, but this smacks of another of those multi-load games. Not too bad if you buy the game on disc, but what about the poor old, long suffering and much neglected, cassette user?

'We have a unique compression technique,' said Rob proudly, 'which we hope will help us to avoid this on cassettes.'

Almost a year is required to complete the conversion. About eight months of this is intensive programming, burning of much midnight oil, missed meals, irritability, anti-social behaviour and pure frustration. Sometimes games programmers are not nice people to know!

It's not just a nine-to-five occupation. Rob has lost count of the number of times he has had to take his work home to solve a particularly difficult problem. Luckily, his wife Lorna is tolerant to an extreme and even tries to help him by playing the game and offering criticism. As an 'ordinary' games player, she is able to cut through the bias and remove his rose-tinted spectacles. If Lorna says, ' it doesn't work' – it doesn't work!

My appetite having been whetted, I wanted to see the game being played. Rob took me into another room where a collection of stripped-down (vandalised?) coin-op machines appeared to be awaiting transportation to the nearest junk yard. Not so, they were in this state because the lads at Images had extensively modified them to provide unlimited lives and various other tricks to make the job that little bit easier.

Without as much as using a 50p piece Rob fired-up G-Loc, and there we were, rolling down the runway in the unfamiliar cockpit of an A85 Mark 2 Zeek – whatever that is. Immediately after take-off Rob did a victory roll and the horizon spun like a propeller. (Nobody likes a Smart Ass!) Rob grinned, and with consumate ease, shot down a couple of enemy planes. Actually, the first level which is to destroy eight (I think) is quite easy. Each level gives you a few extra targets that become increasingly more difficult to hit. Some of them even have the temerity to fire back!

The various levels (on the coin-op) give you different types of terrain to fly over and to my eye the most spectacular of these is flying the Zeek, Top Gun style through a tricky canyon, just below cliff height. One mistake and you very quickly get relegated to Bottom Gun - wheels up, on the canyon floor!

There are all the usual aids to give you every advantage. These include a Head-Up Display (HUD), radar warning systems that show all enemy plane in and out of sight, artificial horizon, damage indicator, fuel gauges, rapid-fire, laser(?) canon, radar guided missiles and an automatic Landing System. Watching the latter bring you in to land on the deck of an aircraft carrier is great fun and pretty spectacular. Obviously you have to land at a friendly base for instant maintenance and re-arming.

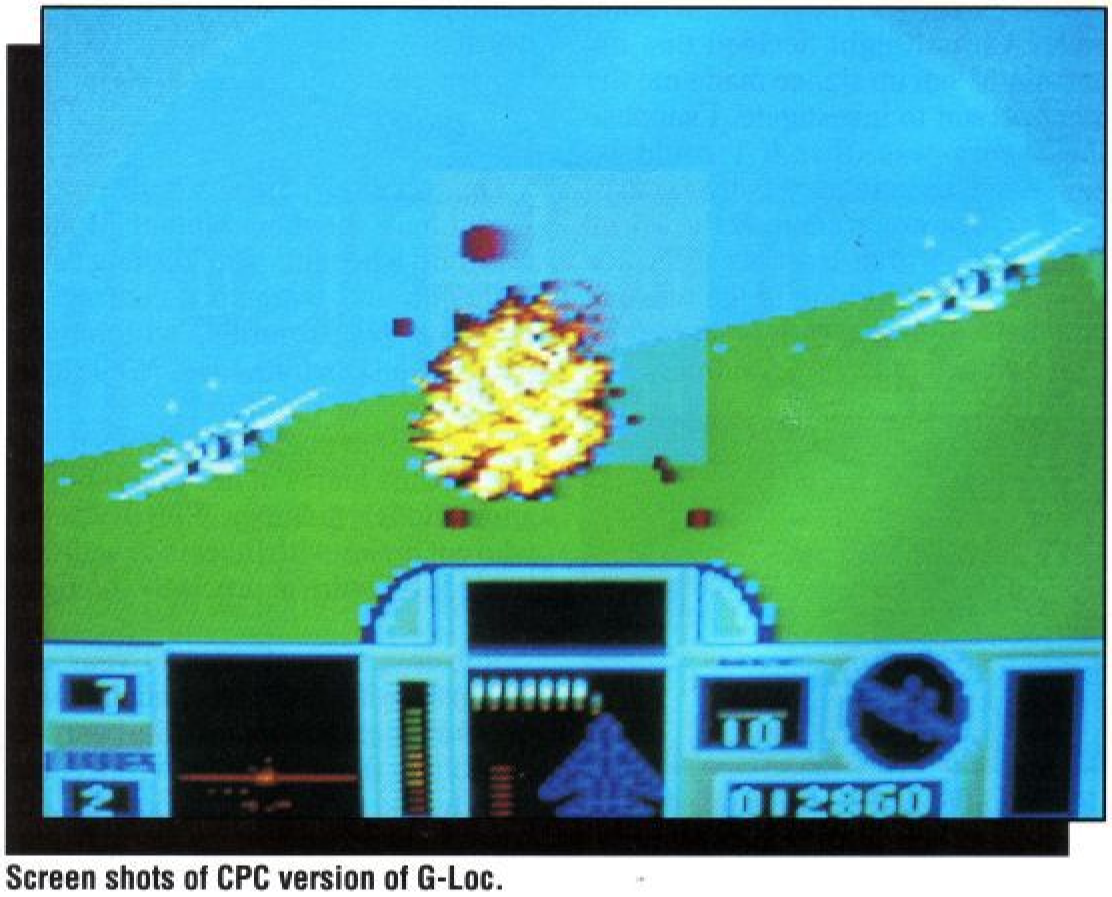
What really sets G-Loc apart is its unique 'out of cockpit zoom' feature. 'What the hell is that?' I hear you ask. (You did ask, didn't you?) Stay with me and I'll try to explain.

G-Loc is a bit like playing *Afterburner*, but being transplanted right into the plane's cockpit with the additional feature of a two-way ejector seat! In other words, you can play it from the pilot's point of view, but have the added facility of 'zooming' out of the cockpit to just behind the plane to give a wider view. You can 'zoom' back again at the touch of a button! Gameplay is not dissimilar to Digital Integration's ATF game of a few years ago, but G-Loc is in 3D!

Once I had absorbed the flavour of the original, Rob whisked me back to his work desk and switched on the CPC, and a PC. In between was a little 'black box', about the same size and shape as a Multiface, which linked them called a PDS (Programmer's Design System).

Everything is written on the PC with no regard to the available memory of the CPC. When everything is working perfectly, the amount of memory used is then checked and compression techniques are employed to make it fit, if necessary.

'We download everything from the PC to the CPC using this system,' said Rob in answer to my obvious question. I was looking at the PC, whose screen



Screen shots of CPC version of G-Loc.

showed the biggest 'menu' I'd ever seen.

'PDS is quite nice,' he explained like a patient headmaster. 'We get a total of eight files and can keep up to 30K of source coding. We shuffle bits in and out as we need them, rather than load everything at once.'

He hit a few buttons and the CPC screen lit up like an arcade. I was looking at a pretty accurate simulation of G-Loc's first level. Even the instrument panel looked familiar, though it didn't have the fine detail of the original. Not bad though.

'We've got the Radar system here just as we have on the coin-op. We cut down a little on the HUD so that we could get more info onto the (instrument) panel,' explained Rob.

He executed the now customary victory roll and once more the artificial horizon did a remarkably smooth 360.

'The horizon routine was the first thing I did . . . it was quite fiddly getting it right and I combined it with the HUD to speed screen clearance and maintain momentum during gameplay. It contains a number of small, re-usable routines. Next the 'spin' (victory roll), the instrument panel and fast sprite routines were completed.'

I must confess I had expected to see vector style, wire frame graphics, but here I was looking at filled-in backgrounds and 'solid' airplanes. All pretty impressive considering the memory limitations of the CPC.

Rob started blasting. The first direct hit took me by surprise. It was quite impressive. An enemy airplane exploded in a mass of orange flame and black smoke. I could almost taste the cordite and scorched metal.

Rob paused the game. 'This was the next stage, creating events such as the explosions, which are similar to the Sega, and the game control routines. These are the routines which read through the maps of the levels and bring on the enemy planes at the right time, control the progression between levels and give bonuses for "missions completed" etc.'

He produced about four sheets of A4 which seemed to detail the heiroglyphics of Tutenkhamen. It was actually a schematic map of G-Loc's gameplay, painstakingly drawn for him by trainee programmer, Gary Hammond. Gary is on a YTS scheme and this job represents his first small step to becoming a professional programmer.

Rob explained that the map showed the coin-op's sequence of events as a player progresses through all levels. For example, it details each wave of



Screen shot of version of Space Gun.

enemy aircraft and their pattern of movement. This plan enables him to make adjustments to his routines and ensures the game becomes an accurate conversion.

The game was up and running again and Rob was doing a fine impersonation of Tom Cruise. Enemy aircraft were dropping like *Flit* infected flies! Suddenly he was caught in a crossfire. The whole screen and cockpit seemed to judder and I half expected the monitor to fragment into a thousand pieces. The damage indicator on the instrument display lit up and the red glow indicated that he had suffered about 30% damage. Not too bad at this stage, but he couldn't make another couple of mistakes like that!

'That little trick is courtesy of the CPC's hardware,' he said excusing himself. 'Anyway, the damage is magically repaired after each "section" of gameplay!' Just as well.

He continued blasting for a while, showing me various patterns of gameplay and effects, and flying his 'magically repaired' Zeek perilously close to the ground.

'Some form of ground effect was required (to give the feeling of speed and height) and we used a blob technique which, as you can see, is quite effective. Now watch this!'

He pressed a couple of buttons on the PC and Arnold's screen blacked out for a few seconds. Then suddenly there was the ubiquitous Zeek flying down that amazing canyon - and there didn't seem to be much room!

'This is the fun bit that nobody expected us to be able to do. We've got some canyons! I know it's not quite as graphically wonderful as the arcade version, but they are there to be flown down and they aren't too bad!' Understandably, he was preening just a little. 'That was a nice little trick!'

Rob is getting to the end of his programming now, he's just 'tidying-up'. At the time of writing he says that he has about a week's work left on the CPC version.

'I've completed all the levels and we have the exact same number as the original - an as near as possible conversion!'

I thought the last sentence summed-up Rob's whole attitude: A burning desire to do the job properly and do it well. Perfectionism is becoming something of a lost attribute, which has been reflected in too many of the awful conversions I've seen in the past. My biggest regret is that programmers of Rob's ability continually have to work on conversions. Wouldn't it be nice if he could use this creativity and expertise to produce something truly original? Is there anybody out there?

As far as G-Loc is concerned, I'm convinced that US Gold have commissioned themselves a number one. It's probably the only shoot 'em up I have actually wanted to play. I suppose you could also say that Rob Hylands and Images have managed to perform an 'as near as possible conversion' on me!

Okay, okay . . . fuel up the Zeek and pass the joystick!

WIDGETS AWAY

Doc Watson gives the low down on the plug connection conundrum

Brrr! I've decided that the middle of winter is definitely not the best time to have your central heating system overhauled. Here I am huddled around my computer, icicles dangling from the disk drive, frantically spraying de-icer at the monitor and desperately trying to keep warm (pauses to blow on hands). One slight bonus of this cold spell and long winter evenings is that I'm more willing to devote time to programming (actually this is a complete lie – it merely serves as a tenuous link to the next sentence).

Speaking of programming, I'd just like to say how refreshing it is to work with my CPC having spent several months developing a Windows 3 application on a PC. All these dynamic link library thingies (DLLs), API calls, GUI events, dynamic data exchange (DDE), object linking & embedding (OLE), plus a whole host of other TLAs (three letter abbreviations) – an old ZX81 joke there – are just too much to handle. Surely there must be a simpler way to print the words 'Unrecoverable Application Error' on the screen?! OK so perhaps the CPC can't boast the latest whiz bang object-oriented compiler to attract programmers, but at least you can have a lot of fun with it.

Owning an unusual printer can be the source of many a headache, as A.Sheldon from Nottingham describes:

"Can you or one of your readers help, I have an Okimate20 printer which is an offshoot marketed by ICL Ltd. I have had excellent assistance from Paul Dresser of Oki Systems (UK), but the machine I own is an ICL 9 pin 'D'-type with RS423 interface.

It works OK but I find that the instructions for the control codes and DIP switches appear to be different to the Oki20. I have written to and telephoned ICL but came to a complete dead-end. Do you have an up to date address?

ACU had a special offer on this printer for its readers although I purchased mine at a rally recently and would welcome any help. Also, anyone with a 464 wanting a desktop publishing program, may I recommend the Pagesetter64 sold by Bit7 Computer Software of Kettering. I am not connected with Bit7, but it is good for the 464 user and it's only a tenner."

I'm afraid no-one here at ACU has a suitable address but, not wanting to see a grown Okimate20 owner cry, I'll gladly print your address. You may be interested to read Stewart Hughes' letter in the December '91 issue as he also owns one of these printers. In the meantime, if any warm hearted reader wishes to help A.Sheldon then write to 6 Kirkstead Gardens, Nottingham. NG7 5EJ or the usual ACU address if you'd prefer.



Sound Advice

Amidst a veritable chorus of bleeps, pings and whistles, Keneth Park from Newent in Gloucestershire writes:

"Through the pages of ACU, or from one of your contributors, could I ask whether anyone knows of a publication or an article dealing with the algorithms: SOUND-ENT-ENV simulating, on a CPC6128, the sound of a musical instrument e.g. piano, trumpet, guitar etc?

There must be someone who has attempted this! To start experimenting with envelopes from scratch could take forever..."

Indeed it might Mr. Park which is why I've never really got to grips with the CPC's envelopes myself. However, as the saying goes, I know a man who does – Ian Waugh. This talented individual has written several books on sound generation using microcomputers, but the one of particular interest to Amstrad owners is 'Making music on the Amstrad CPC' published by Sunshine Books ISBN 0-946408-82-3. This book was used as the basis for half a dozen or so articles written by Ian and published in ACU at the start of 1991, so why not order yoursel fan armful of back issues!

In the meantime, here are a few interesting sound effects to keep you going:

```
10 FOR N=1 TO 7 STEP 0.25
20 SOUND 1,95,1,N,0,0,1
30 SOUND 1,400,1,N,0,0,31
40 SOUND 1,0,20,0
50 NEXT N
60 '
70 ENT 1,10,1,8
80 ENV 1,5,1,5,1,0,200
90 SOUND 1,50,200,6,1,1,3
100 SOUND 1,48,50,5,1,1,6
110 SOUND 1,48,10,5,1,1,1
120 SOUND 1,50,150,6,1,1,3
130 '
140 FOR N=1 TO 3
150 ENV 1,1,1,20
160 ENT -1,1,3,1
170 SOUND 1,284,-5,10,1,1,3
```

```
180 NEXT N
190'
200 ENT -1,1,4,2,1,-4,2
210 SOUND 1,50,100,4,0,1
220 '
230 ENV 1,1,15,5,5,-1,10,10,-1,5
240 FOR N=1 TO 4
250 SOUND 1,16,0,0,1,0,15
260 NEXT N
270'
280 ENT -1,1,4,2,1,-4,2
290 SOUND 1,50,100,4,0,11
```

Serial Killer (the continuing saga)
You may recall a letter in last month's column from Keith Sterrow regarding the operation of a serial printer with Brunword Elite. As promised, I contacted Peter Brunning to see if he could shed any light on the problem. Sadly very little was resolved and, after a lengthy telephone conversation, it appears that Mr. Brunning felt that my sole intention was to point out flaws in his product. This is of course untrue. Apart from the fact that I think Brunword Elite is the most powerful CPC word processor available (although not the one I use), I don't honestly believe that its inability to drive a fairly obscure daisywheel serial printer via an RS232 interface connected to the expansion port could be construed as a major failing.

Indeed, the whole point of Keith's letter is that his setup and intended application are extremely specific and thus require specific help. It really does sadden me that commerical paranoia should blind anyone from this fact.

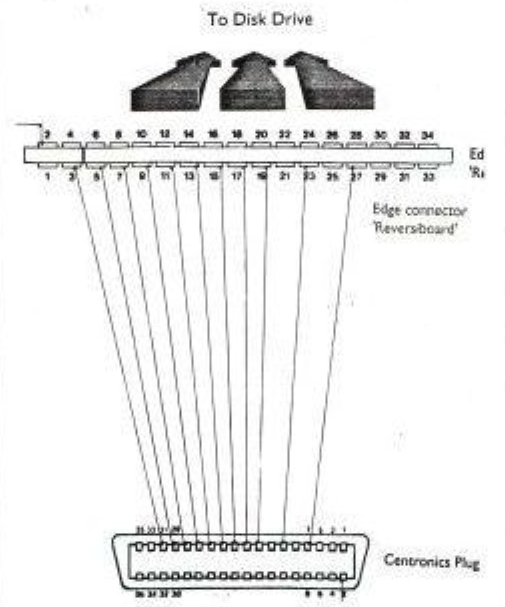
Therefore, last month's challenge still stands – can you devise a solution to this seemingly impossible problem? The address remains the same as always.

Driven insane
As 3.5" second disk drives fall in price and subsequently rise in popularity, one element of the ACU readership has been feeling increasingly left out in the cold. No I'm not talking about the central heating again, rather those people who own 6128+s. The problem is that the connectors on the disk drives don't fit onto their computers – until now that is. Enter the ACU 6128+ second disk drive adaptor (pretty snappy name huh?).

To build this miracle of modern technology you will need the following:

36 way Centronics plug (Maplin code FJ61R)

Amstrad 6128+ Second Disk Drive Adaptor



Centronics Plug	to	Edge Connector
7		27
11		23
15		19
17		17
19		15
21		13
23		11
25		9
27		7
29		5
31		3

17x2 Edge connector reversiboard (Maplin code GB99H)

Wire of choice

(NOTE: You may have to trim the reversiboard down from 25x2, a hacksaw will do nicely)

Having obtained these components, simply solder lengths of wire between the two connectors according to the extraordinarily clear diagram... and that's it!

Storm in a teacup?
Andrew Elston of Leicester has some rather ambitious plans for his trusty CPC:

"I have long been interested in computer simulations and in particular modelling real-world phenomena such as the weather. Having recently been enthralled by a television documentary about how tens of thousands of measurements are fed into a European supercomputer, which then uses its model of the world to predict the weather, I wondered if my humble Amstrad 6128 could perhaps do something similar – albeit on a much smaller scale. Also, could this be adapted to show the future effects of global warning!

I realise this request is a little unusual but such applications of computers are much more interesting than the usual mixture of games, spreadsheets etc."

Hmmmm...er...yes well it certainly sounds like an interesting idea. I've no doubt a CPC could model a tiny slice of the atmosphere but just how much and how accurately I honestly don't know. From what I can gather the physics of the earth's atmosphere are rather complex and not entirely understood but I bet you're in for some very hairy maths! Why not contact the MET office and ask (extremely nicely) for a list of books/papers on the subject – I'm sure they'd be only too pleased to help.

In the meantime I thought I'd write my very own weather forecasting program. It might not be as sexy as John Kettley but it's got to be more believable...

"Tomorrow morning will be dry and clear to start with, followed by a little light rain from the south. Strong winds will spring up together with fog and thickening mist. Torrential rain will pour down and sleet and snow may affect roads in the north. Thunder, lighning, storm-force winds and gales will develop.

Tornadoes and volcanic eruptions will devastate south-east England and the rest of the country will suffer earthquakes, land slides, hurricanes and nuclear war. Whole cities will be consumed in fire and floods while the pitiful remnants of humanity run screaming for shelter in holes in the ground which will subsequently collapse and bury them for all eternity. Devastation will tear across the face of the earth like a whirlwind, and plagues of leprosy, locusts, bovine spongiform encephalitis and nintendo video games will make the death agonies of the human race even more sunk in misery. Mountains will topple and crush the plainsdwellers; the seas will rise and swallow up the lowlands. The atmosphere will become an unbreathable mixture of nitric acid and glue, and the bones of those centuries dead will explode from their coffins to haunt those still living. Finally the earth will split apart in an explosion of fire and brimstone and the four horsemen of the apocalypse will arrive to herald the Last Age of Man. The evening will be fine and warm although scattered showers are possible in the south-west and outlaying regions."

Until next time, stay lucky and don't forget to write! Don't forget whether your problem is large or small, we can get you the lowdown to help you out.

THE ELECTION GAME



```
5 MODE 1
10 INK 14,7:INK 15,15
20 DIM POSI(3),party(3),cash(3)
30 cash(1)=500:cash(2)=300:cash(3)=100
40 GOSUB 8000:blank$="":FOR f=1 TO 10:blank$=blank$+CHR$(255
):NEXT
50 DIM pop(3),boardc(20):pop(1)=40:pop(2)=40:pop(3)=20
60 FOR f=1 TO 20:READ boardc(f):NEXT
70 CLS:LOCATE 1,10:PEN 2:PRINT"Length of game ?":PRINT"1 - S
hort (10 days)":PRINT"2 - Medium (15 days)":PRINT"3 - Long (
20 days)
80 a$=INKEY$:IF a$<>"1" AND a$<>"2" AND a$<>"3" THEN 80
90 IF a$="1" THEN days=10 ELSE IF a$="2" THEN days=15 ELSE I
F a$="3" THEN days=20
100 CLS:PRINT "Does anyone want to be the Conservative party
 ? (Y or N)"
110 A$=INKEY$:IF A$<>"y" AND A$<>"n" THEN 110
130 IF a$="y" THEN party(1)=1 ELSE party(1)=0
140 CLS:PRINT "Does anyone want to be the Labour party?
   (Y or N)"
150 A$=INKEY$:IF A$<>"y" AND a$<>"n" THEN 150
170 IF a$="y" THEN party(2)=1 ELSE party(2)=0
180 CLS:PRINT "Does anyone want to be the Liberal       Democ
rat party  (Y or N)"
190 A$=INKEY$:IF A$<>"y" AND a$<>"n" THEN 190
210 IF a$="y" THEN party(3)=1 ELSE party(3)=0
300 MODE 0:GOSUB 9000:GOSUB 9400
320 posi(1)=1:posi(2)=1:posi(3)=1
1000 REM Main Game Loop
1005 GOSUB 9300:PAPER 4:PEN 5:LOCATE 5,8:PRINT"There are":LO
CATE 5,9:PRINT days;"days":LOCATE 5,10:PRINT"to go !"
1007 FOR f=1 TO 2000:NEXT
1010 FOR ploop=1 TO 3
1020 GOSUB 9500:GOSUB 9300:PAPER 4:PEN 14:IF party(ploop)=0
GOTO 1040
1030 GOSUB 9800:GOSUB 9300
1040 PEN 14:LOCATE 5,8:IF ploop=1 THEN PRINT"Tories" ELSE IF
 ploop=2 THEN PRINT"Labour" ELSE IF ploop=3 THEN PRINT"Lib-D
em"
1048 LOCATE 5,9:PRINT"throw a";dice
1050 FOR f=1 TO 1500:NEXT
1060 go=ploop:old=posi(ploop):posi(ploop)=posi(ploop)+dice:I
F posi(ploop)>20 THEN posi(ploop)=posi(ploop)-20:cash(ploop)
=cash(ploop)+30
1070 GOSUB 9900:REM blanks old position, draws new
1080 GOSUB 5000:REM board events etc.
1090 GOSUB 9400:GOSUB 9600
1100 FOR f=1 TO 1500:NEXT
1110 NEXT ploop
1500 days=days-1:IF days>0 THEN 1000
1510 GOSUB 9300:PAPER 4:PEN 14:LOCATE 5,8:PRINT" POLLING":LO
CATE 5,9:PRINT"   DAY":FOR f=1 TO 2000:NEXT
2000 REM START THE ELECTION
2010 BORDER 0:PAPER 5:CLS:FOR f=1 TO 80:PAPER INT(RND(1)*15+
1):PEN INT(RND(1)*15+1):PRINT"* ELECTION RESULTS *";:SOUND 1
,(RND(1)*1000),10:NEXT
2020 MODE 1:INK 0,0:PAPER 0:CLS:PEN 1:LOCATE 1,3:PRINT "It's
 election night and the results are starting to come in. Und
er the new       Proportional Representation laws imposed by
the EEC after political union a"
```

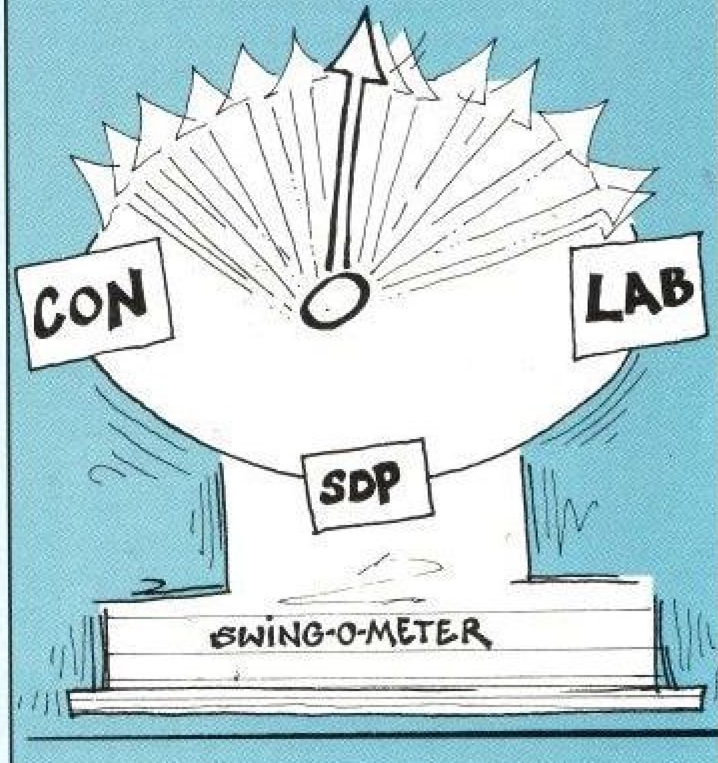
BY DUNCAN EVANS

This is it, the big one! As the major political Parties indulge in the usual argie-bargie and doubletalk to ensure the winning position at the polling stations, this is your chance to decide the outcome before the event!

Decide to take the part of either the Tories, Labour or the Liberal Democrats and battle to win the popularity stakes in this superb board game, controlled by the dice. With a choice of a 10-day, short run up to the big day, or a fully blown campaign, you and two friends, or you against the computer, must use strategy and cunning to make the right decisions to win the big prize.

At the end of the day, sit back and watch the election results coming in and see if your campaign succeeded. This is a bit of a long one, so type in this month's listing, then add next month's to it, along with the full instructions, then get ready to do battle on a 'Major' scale. Good luck, you're going to love this one.

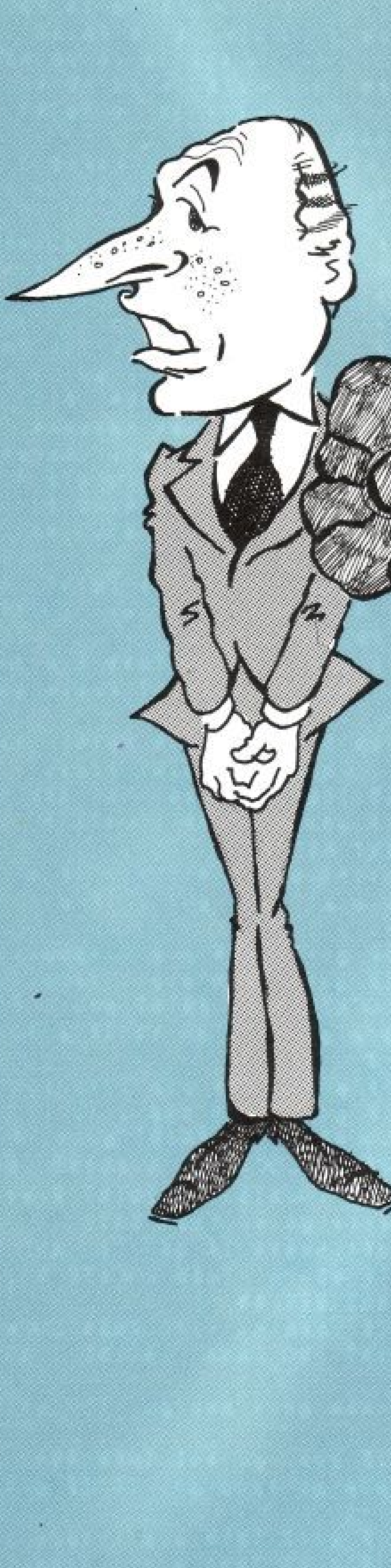
```
2022 PRINT"party must score over 50% to win an      outright
majority."
2025 PAPER 3:PEN 1:LOCATE 1,13:PRINT"PARTY              SEATS
VOTE %    TOTAL %":PAPER 0:PEN 2:PRINT"Conservative":PRINT:PE
N 3:PRINT"Labour":PRINT:PEN 1:PRINT"Lib-Democrats"
2026 FOR f=1 TO 3:IF pop(f)<5 THEN pop(f)=5
2027 IF pop(f)>95 THEN pop(f)=95
2028 NEXT
2030 tory=0:lab=0:LD=0:x%=pop(1)+pop(2)+pop(3)+1:FOR f%=1 TO
 625
2040 a=INT(RND(1)*x%):IF a<=pop(1) THEN tory=tory+1:GOTO 207
0
2050 IF a>pop(1) AND a<=(pop(1)+pop(2)) THEN lab=lab+1:GOTO
2070
2060 ld=ld+1
2070 PEN 2:LOCATE 16,14:PRINT tory:LOCATE 25,14:PRINT INT(to
ry/f%*100+0.5):LOCATE 34,14:PRINT INT(tory/625*100+0.5)
2080 PEN 3:LOCATE 16,16:PRINT lab:LOCATE 25,16:PRINT INT(lab
/f%*100+0.5):LOCATE 34,16:PRINT INT(lab/625*100+0.5)
2090 PEN 13:LOCATE 16,18:PRINT ld:LOCATE 25,18:PRINT INT(ld/
f%*100+0.5):LOCATE 34,18:PRINT INT(ld/625*100+0.5)
2100 NEXT
2110 LOCATE 1,20:PEN 1:PAPER 3:PRINT"The winners are the ":L
OCATE 21,20:IF tory>lab AND tory >ld THEN PRINT"Conservative
 party"
2120 IF lab>tory AND lab>ld THEN PRINT"Labour party"
2130 IF ld>tory AND ld>lab THEN PRINT"Lib-Democrat party"
2140 IF lab=tory AND lab>ld THEN PRINT"Labour & Tories"
2150 IF lab=ld AND lab>tory THEN PRINT"Labour & LibDems"
2160 IF tory=ld AND tory>lab THEN PRINT"Lib-Dem & Tories"
2170 PRINT "  Press any key to play another game      "
2180 WHILE INKEY$="":WEND:RUN
5000 REM This is what happens o each square of the board. Wh
en you get bored, simply change the text and results.
5005 GOSUB 9300:PEN 4:LOCATE 5,14:PRINT blank$:PAPER 4
5010 ON posi(go) GOTO 5100,5200,5300,5400,5500,5600,5700,580
0,5900,6000,6100,6200,6300,6400,6500,6600,6700,6800,6900,700
0
5100 PEN 14:LOCATE 5,6:PRINT"CAMPAIGN":LOCATE 9,7:PRINT"HQ":
LOCATE 5,9:PRINT"You can":LOCATE 5,10:PRINT"put your":LOCATE
 5,11:PRINT"feet up"
5105 IF party(go)=0 THEN FOR f=1 TO 1000:NEXT:RETURN
5110 LOCATE 5,14:PRINT"Press key":WHILE INKEY$="":WEND:RETUR
N
5200 PEN 5:LOCATE 5,6:PRINT "Appear on":LOCATE 5,7:PRINT"Wog
an ?":LOCATE 5,8:PRINT"Press Y/N":IF party(go)=0 THEN 5230
5210 a$=INKEY$:IF A$<>"y" AND a$<>"n" THEN 5210
5220 IF a$="n" THEN LOCATE 5,11:PRINT"DECLINED":FOR f=1 TO 1
000:NEXT:RETURN
5230 a=INT(RND(1)*100+1):IF a<76 GOTO 5250
5240 pop(go)=pop(go)-2:IF go=1 THEN pop(2)=pop(2)+1:pop(3)=p
op(3)+1
5242 IF go=2 THEN pop(1)=pop(1)+1:pop(3)=pop(3)+1
5244 IF go=3 THEN pop(1)=pop(1)+1:pop(2)=pop(2)+1
5246 LOCATE 9,14:PRINT"poor":FOR f=1 TO 1000:NEXT:RETURN
5250 pop(go)=pop(go)+4:IF go=1 THEN pop(2)=pop(2)-2:pop(3)=p
op(3)-2
5252 IF go=2 THEN pop(1)=pop(1)-2:pop(3)=pop(3)-2
5254 IF go=3 THEN pop(1)=pop(1)-2:pop(2)=pop(2)-2
5260 LOCATE 9,14:PRINT"good":FOR f=1 TO 1000:NEXT:RETURN
5300 PEN 3:LOCATE 5,6:PRINT "Bribe the":LOCATE 5,7:PRINT"new
spapers":LOCATE 5,8:PRINT"Press Y/N":LOCATE 5,14:PRINT"100k"
:IF party(go)=0 THEN 5330
5310 a$=INKEY$:IF A$<>"y" AND a$<>"n" THEN 5310
5320 IF a$="n" THEN LOCATE 5,11:PRINT"DECLINED":FOR f=1 TO 1
000:NEXT:RETURN
5325 IF cash(go)<100 THEN LOCATE 5,14:PRINT blank$:LOCATE 5,
14:PRINT"!NO CASH!":SOUND 1,400,50:FOR f=1 TO 1500:NEXT:RETU
RN
5330 cash(go)=cash(go)-100:a=INT(RND(1)*100+1):IF a<76 GOTO
5350
5335 IF posi(go)=12 THEN 5240
5340 pop(go)=pop(go)-10:IF go=1 THEN pop(2)=pop(2)+5:pop(3)=
pop(3)+5
5342 IF go=2 THEN pop(1)=pop(1)+5:pop(3)=pop(3)+5
5344 IF go=3 THEN pop(1)=pop(1)+5:pop(2)=pop(2)+5
5346 LOCATE 9,14:PRINT"bad":FOR f=1 TO 1000:NEXT:RETURN
5350 pop(go)=pop(go)+6:IF go=1 THEN pop(2)=pop(2)-3:pop(3)=p
op(3)-3
```





```
5352 IF go=2 THEN pop(1)=pop(1)-3:pop(3)=pop(3)-3
5354 IF go=3 THEN pop(1)=pop(1)-3:pop(2)=pop(2)-3
5360 LOCATE 9,14:PRINT"great":FOR f=1 TO 1000:NEXT:RETURN
5400 PEN 6:LOCATE 5,6:PRINT "Go baby":LOCATE 5,7:PRINT"kissi
ng":LOCATE 5,8:PRINT"Press Y/N":IF party(go)=0 THEN 5430
5410 a$=INKEY$:IF A$<>"y" AND a$<>"n" THEN 5410
5420 IF a$="n" THEN LOCATE 5,11:PRINT"DECLINED":FOR f=1 TO 1
000:NEXT:RETURN
5430 a=INT(RND(1)*100+1):IF a<76 GOTO 5450
5440 LOCATE 9,14:PRINT"nil":FOR f=1 TO 1500:NEXT:RETURN
5450 pop(go)=pop(go)+2:IF go=1 THEN pop(2)=pop(2)-1:pop(3)=p
op(3)-1
5452 IF go=2 THEN pop(1)=pop(1)-1:pop(3)=pop(3)-1
5454 IF go=3 THEN pop(1)=pop(1)-1:pop(2)=pop(2)-1
5460 LOCATE 9,14:PRINT"good":FOR f=1 TO 1000:NEXT:RETURN
5500 PEN 14:LOCATE 5,6:PRINT "Produce a":LOCATE 5,7:PRINT"le
aflet":LOCATE 5,8:PRINT"campaign ?":LOCATE 5,12:PRINT"Press
Y/N":IF party(go)=0 THEN 5530
5510 a$=INKEY$:IF A$<>"y" AND a$<>"n" THEN 5510
5520 IF a$="n" THEN LOCATE 5,11:PRINT"DECLINED":FOR f=1 TO 1
000:NEXT:RETURN
5530 a=INT(RND(1)*100+1):IF a<76 GOTO 5550
5540 LOCATE 9,14:PRINT"None":FOR f=1 TO 1000:NEXT:RETURN
5550 pop(go)=pop(go)+2:IF go=1 THEN pop(2)=pop(2)-1:pop(3)=p
op(3)-1
5552 IF go=2 THEN pop(1)=pop(1)-1:pop(3)=pop(3)-1
5554 IF go=3 THEN pop(1)=pop(1)-1:pop(2)=pop(2)-1
5560 LOCATE 9,14:PRINT"good":FOR f=1 TO 1000:NEXT:RETURN
5600 PEN 5:LOCATE 5,6:PRINT "Back bench":LOCATE 5,7:PRINT"di
spute"
5650 pop(go)=pop(go)-4:IF go=1 THEN pop(2)=pop(2)+2:pop(3)=p
op(3)+2
5652 IF go=2 THEN pop(1)=pop(1)+2:pop(3)=pop(3)+2
5654 IF go=3 THEN pop(1)=pop(1)+2:pop(2)=pop(2)+2
5660 LOCATE 9,14:PRINT"poor":FOR f=1 TO 1000:NEXT:RETURN
5700 PEN 5:LOCATE 5,6:PRINT "Book ads":LOCATE 5,7:PRINT"in p
apers?":LOCATE 5,8:PRINT"Press Y/N":LOCATE 5,14:PRINT"25k":I
F party(go)=0 THEN 5725
5710 a$=INKEY$:IF A$<>"y" AND a$<>"n" THEN 5710
5720 IF a$="n" THEN LOCATE 5,11:PRINT"DECLINED":FOR f=1 TO 1
000:NEXT:RETURN
5725 IF cash(go)<25 THEN LOCATE 5,14:PRINT blank$:LOCATE 5,1
4:PRINT"!NO CASH!":SOUND 1,400,50:FOR f=1 TO 1500:NEXT:RETUR
N
5730 cash(go)=cash(go)-25:a=INT(RND(1)*100+1):IF a<76 GOTO 5
750
5746 LOCATE 9,14:PRINT"none":FOR f=1 TO 1000:NEXT:RETURN
5750 pop(go)=pop(go)+6:IF go=1 THEN pop(2)=pop(2)-3:pop(3)=p
op(3)-3
5752 IF go=2 THEN pop(1)=pop(1)-3:pop(3)=pop(3)-3
5754 IF go=3 THEN pop(1)=pop(1)-3:pop(2)=pop(2)-3
5760 LOCATE 9,14:PRINT"great":FOR f=1 TO 1500:NEXT:RETURN
5800 PEN 0:LOCATE 5,6:PRINT "Appear on":LOCATE 5,7:PRINT"Cha
nnel 4?":LOCATE 5,8:PRINT"Press Y/N":IF party(go)=0 THEN 583
0
5810 a$=INKEY$:IF A$<>"y" AND a$<>"n" THEN 5810
5820 IF a$="n" THEN LOCATE 5,11:PRINT"DECLINED":FOR f=1 TO 1
000:NEXT:RETURN
5830 a=INT(RND(1)*100+1):IF a<76 GOTO 5850
5840 pop(go)=pop(go)-2:IF go=1 THEN pop(2)=pop(2)+1:pop(3)=p
op(3)+1
5842 IF go=2 THEN pop(1)=pop(1)+1:pop(3)=pop(3)+1
5844 IF go=3 THEN pop(1)=pop(1)+1:pop(2)=pop(2)+1
5846 LOCATE 9,14:PRINT"poor":FOR f=1 TO 1000:NEXT:RETURN
5850 pop(go)=pop(go)+2:IF go=1 THEN pop(2)=pop(2)-1:pop(3)=p
op(3)-1
5852 IF go=2 THEN pop(1)=pop(1)-1:pop(3)=pop(3)-1
5854 IF go=3 THEN pop(1)=pop(1)-1:pop(2)=pop(2)-1
5860 LOCATE 9,14:PRINT"good":FOR f=1 TO 1500:NEXT:RETURN
5900 PEN 12:LOCATE 5,6:PRINT "Start":LOCATE 5,7:PRINT"dirty"
:LOCATE 5,8:PRINT"tricks":LOCATE 5,9:PRINT "campaign?":LOCAT
E 5,10:PRINT"Press Y/N":IF party(go)=0 THEN 5930
5910 a$=INKEY$:IF A$<>"y" AND a$<>"n" THEN 5910
5920 IF a$="n" THEN LOCATE 5,11:PRINT"DECLINED":FOR f=1 TO 1
000:NEXT:RETURN
5930 a=INT(RND(1)*100+1):IF a<76 GOTO 5950
5935 IF posi(go)=17 THEN 6650
```

to be continued .... next month



LIST-IT-YOURSELF

List-It-Yourself is an application program written in BASIC.
It satisfies a need for a simple way of keeping a record of most things that one wishes to remember.
Adding data to the list is simple.
Altering or deleting data is simple.
Retrieving a wanted item from the list of data is simple.
Retrieving is also fast.

The working of the program is described in a way which the beginner, especially, can understand, but the more experienced programmer too could find something of interest. The copy cursor is used in a way which experienced programmers have probably discovered for themselves. The novice will discover the way in here. Control Character commands seem to be ignored by books on BASIC programming and by computer magazines. Discover them in this program and in this article.

Thomas Betts kicks off a brand new BASIC series to help novices get to grips with programming, whilst giving more advanced users an excellent utility to boot.

LIST-IT-YOURSELF

Why use a complicated database when all you need is a simple list?

Computer magazine editors, on their letters pages, have been known to recommend an expensive software package when a reader's letter was asking how one could program their new computer to keep a record of a small number of items, and: "...but I don't know where to start."

Start here.

Although this article is addressed mainly to those who have wanted help, others too should find something of interest.

Long ago, when I first started buying computer magazines, I began to keep records of the interesting and useful items which I thought I might wish to refer to at some future date. I kept those records in a notebook until I came to my senses and asked myself what my computer was for. It was then that I wrote what was, as far as I remember, my own first program: it was hardly a program at all, really, just a list of references which could be displayed on the monitor screen.

The list got bigger with each new issue of a magazine, and finding what I wanted in my list, as it scrolled up the screen, became a lengthy task. How would I improve things?

One of the items I had listed was the reference to a type-in program which sorted data into alphabetical order. But will that help? Should 'Simple List' be entered under 'S' or under 'L'? That is a problem which exists when alphabetical order is necessary to help a human eye to do the searching; but the CPC and its excellent BASIC language can search through an unordered list from the start to the finish quite fast enough. My program would be doing the searching for me.

If you are not completely new to programming you can scan through the detailed explanations of the following Simple List program. If you are new, then you will probably need to refer to your User Handbook some of the time.

Switch on your computer.

Type: 1 mode 1

Press the [ENTER] key.

The CPC's BASIC programs will have a number of lines, and in front of each line will be its line number. If you have read even just a little way into your CPC User Instructions you will know that you have just typed and entered line number 1.

From now on I shall not say, 'the [ENTER] key'; instead I shall say, '[ENTER]'.

Type: run 1

Press [ENTER].

This command (known in this instance as an immediate command because it is executed as soon as it is entered) will run the one line program which you have just installed. BASIC will execute the program starting at line 1. If no line number is quoted, the program will execute from the beginning. In this program, of course, there is no difference.

The program will clear the screen to MODE 1, and terminate. The word Ready will appear in the top left corner, and the cursor on one line below at the extreme left. The computer is ready for more.

From now on I shall not say, 'Type so-and-so. Press [ENTER]'; instead, I shall say, 'Enter: so-and-so'.

Enter: list

The screen shows: 1 MODE 1

You will see that MODE has been printed in upper case, or capitals. All BASIC keywords are automatically converted to upper case, and MODE is a keyword. Keywords mean something specific in the BASIC language. MODE is a command to change the screen mode; it clears the screen and sets it to have 20 or 40 or 80 columns according to mode number 0 or 1 or 2 respectively.

If you make a practice of typing your programs in lower case, then when you list them, any mistyped keywords will be noticeable because they will not have been converted to upper case.

Enter: 2 locate 9,12

The LOCATE command moves the text cursor – in this instance to position 9,12. That is 9 columns from the left edge of the screen, and 12 rows down from the top. In mode 1 the screen is 40 columns wide, so 9,12 is 11 columns to the left of the screen centre.

Enter: 3 ?"A SIMPLE LIST"

The question mark is a typing aid: it stands for PRINT.

The keywords have been changed to upper case, and the ? appears as PRINT.

The many ways that the PRINT command can be used are described in the User Handbook. In our line 3 it has printed a string: a string of characters enclosed within inverted commas.

Enter: run

The program runs, and displays a title screen, but the Ready message and the cursor spoil the effect.

To tidy things up we will jump ahead somewhat.

Enter: 4 locate 14,25

Enter: 5 ?"press [SPACE]"

Enter: 6 goto 4

GOTO is a command, and is used here to cause the program to GO TO line 4. Lines 4,5,6, will keep repeating; the program will be non-stop – never ready. Press [ESC] twice and Ready and the cursor will return to the screen.

One or more characters enclosed in inverted commas form a type of data known as a string constant. "A SIMPLE LIST" as in line 3 is a string constant.

We will use string variables to contain all the items which we want to put into our simple list.

Enter: 1001 a$="This is the first item"

Enter: 1002 b$= "This is the second item"

In earlier versions of BASIC these lines would not be understood; the keyword LET had to be used when assigning values to a variable. LET x=4 is an example. The CPC BASIC does understand the LET command, if used, but it is usually omitted.

a$ and b$ are the names of the string variables, and the words between the inverted commas are their values. An 'a' by itself in a BASIC program would not be recognized as a keyword and BASIC would assume it to be a numeric variable. The dollar symbol ($) indicates a string variable. Actually, when I see b$ I don't read it as bee dollar, but as bee string.

Enter: run 1001

Enter: ?a$

Enter: ?b$

Note that there is no need for a space after '?'

If we carry on with c$, d$... we will run out of short names for the many string variables which will be needed. An array of string variables will serve better.

Some of the lines in our Simple List program will be amended before the program is completed, and I shall amend them by entering them anew rather than by editing them: when a BASIC line is entered with a line number which already exists, the new line replaces the old one. You may, if you wish, amend the old line by editing.

Enter: 1001 e$(1)="This is the first item"

Enter 1002 e$(2)="This is the second

Enter: 1003 e$(3)="third"

Enter: 1144 e$(144)="This is the last string in the simple list"

e$(1) is the first element in the e$ array, e$(2) is the second, and so on. The number inside the parentheses is the subscript. A large array is going to be needed and so its size, or dimension, must be declared. The size, if not declared, becomes 10 by default.

Enter: 20 dim e$(144):gosub 1000

dim e$(144) declares a single dimension array of 145 elements: the subscript index starts at 0, not 1. BASIC will reserve room in memory for 145 string variables.

Why am I using e as a variable name and not any other letter?

Well, e stands for everything. I put everything into my list, not only the references, but telephone numbers; birthdays; what I did today, if it was worth remembering; all sorts.

A BASIC line can have several statements if each statement is separated by a colon. Line 20 is an example. The GOSUB command, after the colon, calls the sub-routine at line 1000.

Enter: 1000 rem ** The List **
Enter: 1145 return
Enter: 10 mode 2
Enter: 50 ?:?: line input "Seek what";s$:rem s for seek

I am sometimes puzzled about the letter, or letters, of a variable name which I see in published programs, so in order to stop you wasting your time, as I sometimes waste mine, I'll explain my names if they need explaining.

Line 1000 has a REM command which tells BASIC that what follows in this line is not a part of the program to be executed, but is a REMinder. Here, the reminder is the title of the sub-routine. The sub-routine will start assigning the variables at line 1001. Line 1145 is the last line of the sub-routine and has a RETURN command to take the program back to the point where a GOSUB called the sub-routine.

MODE 2 commands a clean screen with a width of 80 columns.

LINE INPUT is a command to accept an entire line from the keyboard and assign it, in this instance, to the string variable s$ (line 50). If you enter run 50 on a CPC6128, the screen will show: Seek what? BASIC expects there to be a comma or a semi-colon just before s$ in line 50. If it is a semi-colon, as we have here, then a question mark followed by a space is added after the quoted string: Seek what. If it is a comma, the question mark and space are not added. My CPC464 does not have this question mark feature.

Enter: 90 for i=1 to 144
Enter: 100 t$=e$(i): rem temporary string
Enter: 120 p=instr (t$,s$): rem p for position
Enter: 130 if p=0 then 270
Enter: 135 ?t$
Enter: 270 next
Enter: 300 goto 40
Enter: 40 cls

Lines 90 and 270 are the beginning and end of a FOR...NEXT loop. The FOR and NEXT commands create a loop with an automatic incrementing (or decrementing) loop counter. The loop executes repeatedly until the count index, i in this case, reaches 144. The index is incremented on each circuit of the loop.

We have given the name i to a numeric variable. Line 100 makes t$ the same as e$(i). If i=3 then e$(1) will equal third, as in line 1003 above, and t$, also, will equal third.

In line 120, the INSTR function will search through t$ for the s$ and indicate the position within t$ where it is found: if the t$ is: "This will be the last string" and the s$ is: "n" then the position is 2. If s$ is: "will" the position is 6 (spaces count)., If s$ is not present the position will be 0 (zero).

IF is a command.

Line 130: If p does equal zero then the program will branch to line 270. Note that the command in line 120 includes...then 270, meaning...THEN GOTO 270: BASIC assumes the GOTO. If p is >0 (greater than zero) line 135 will not be skipped, and t$ will be printed.

You will often see books on programming which condemn the use of the command GOTO, but GOTO can, in my opinion, be a useful command in a small program and do a job which cannot always be conveniently done by other ways.

Enter: list 10-

The listing starts at line 10 and, because of the 'dash' symbol, will continue to the end of the program lines.

The screen should show:-

```
10 MODE 2
20 DIM e$(144): GOSUB 1000
40 CLS
50 PRINT: PRINT: LINE INPUT "Seek what";s$: REM s for seek
90 FOR i=1 to 144
100 t$=e$(i):REM temporary string
120 p=INSTR (t$,s$):REM p for position
130 IF p=0 THEN 270
135 PRINT t$
270 NEXT
300 GOTO 40
1000 REM ** The List **
1001 e$(1)= "This is the first item"
1002 e$(2)= "This is the second item"
1003 e$(3)="third"
1144 e$(144)= "This is the last string in the simple list"
1145 RETURN
```

If it doesn't, correct it where you went wrong and then:-

Enter: 136 stop

This is a temporary measure to control the execution of the program.

Enter: run 10

When you are prompted by Seek what?, enter whatever it is you want to find – this is sometimes known as the target string – . Try second to begin with. As you might guess, the STOP command stops execution immediately

Continued overleaf▶

after the t$ has been printed; the screen will show that there was a Break in 136. The program can be made to continue:-

Enter: cont

– and do so again whenever the Break message shows. When you have practised to your satisfaction, press [ESC] twice, and save the program if you feel like a break. See the User Handbook for how to save. There is room, literally so, for improvement to that bit of the program, and first we will get rid of the temporary line 136.

```
Enter: 400 ' ** press space **
Enter: 410 locate col,row: rem column
Enter: 420 ?"press [SPACE]"
Enter: 430 while inkey$="":wend:while inkey$ < >"":wend
Enter: 440 return
```

Line 400 is the title of the sub-routine which delays execution of a program until the space bar is pressed. The apostrophe (') does the equivalent of :REM indicating that BASIC should ignore the rest of the line. col and row are the numeric variables which will hold the screen co-ordinates for x and y of the LOCATE command. Line 430 has two WHILE...WEND loops. The first is only sometimes necessary: it repeats while the space bar is depressed. The second loop repeats while it isn't. INKEY$ is a BASIC function which interrogates the keyboard.

The WHILE and WEND commands create a loop which executes repeatedly as long as the loop condition is true. Their use here is not a good example for explaining how they behave. Have a look at WHILE and WEND in the BASIC keywords chapter of your CPC User Handbook.

```
Enter: 4 col=14: row=25: gosub 400 : rem press space sub-routine
Enter: 5
Enter: 6
```

Line 4 equates the co-ordinates for the sub-routine. Entering just the line numbers 5 and 6 deletes those lines.

The program can now start from the beginning:-

Enter: run

Now when the title screen appears, pressing [SPACE] does work. There are two other places which will benefit by the use of this sub-routine:-

```
Enter: 240 ?:?
Enter: 250 gosub 420:?
Enter: 290 gosub 420:?
Enter: 80 ?
Enter: 136
```

Line 136 has gone. The PRINT commands are to tidy the screen.

Those GOSUBs direct the program, not to the beginning of the sub-routine, but so as to miss out the LOCATE command in line 410. The intention is to make the press [SPACE] message appear just below the previous item on the screen. You'll see if you run.

You have probably noticed that the program's 'seek' feature finds only the first occurrence of a target string. To find all occurrences:-

```
Enter: 110 p=0
Enter: 120 p=instr (p+1, t$, s$): rem p for position
Enter: 260 goto 120
Enter: 280 ?"Not found"
```

The INSTR function now includes the optional 'start' parameter, and the search through the first string (t$) for the second string (s$) starts at the point indicated by the optional number (p+1). The search for the first occurrence will start at position 0+1, and subsequent searches will start just after the position where the previous occurrence was found.

Line 280 prints the message Not found when there are no more occurrences of the target string.

Have you noticed that if you enter this as your target string, then the target is not found? The lower case t of the search string is not recognised as being a match with the capital T of This in the data list. In a moment we will remedy that problem; but the remedy will slow down the search.

I have prepared a list of some 32,000 characters for a timing test. Before the remedy, the time taken to find the very last character in that list was 3.06 seconds; after the remedy it was 4.92 seconds. Those who believe what they read about BASIC being slow will be astounded to know that the CPC's BASIC, as used here, can search at a rate of more than 10,000 characters a second. The thought of 'slowing down the search time' is amusing to me now, when I recollect that I wrote this program when I had no disc drive; loading and saving on cassette took minutes, not seconds.

Remedy:-

```
Enter: 120 p=instr (p+1,lower $(t$), lower$(s$)): rem p for position
```

The LOWER$ function converts all upper case characters to lower case.

The seek string (s$) this will now find This.

Let us have some user friendliness; after all, you are creating this program for use by yourself.

```
Enter: 500 ' ** Windows and keys **
Enter: 510 mode 2:window 1,80,1,22: window#1,1,80,23,25
Enter: 520 ?#1, string$(80,154); "F6=RUN F7=LIST F8=CAT F9=SAVE"
Enter: 530 ?#1, "A=AA C=CWTA U=ACU JA FE MR AP MY JE JL AU SE OC NO DE"
Enter: 540 key 6, "run"+chr$(13)
Enter: 550 key 7,"cls:list" +chr$(13)
Enter: 560 key 8,"cat"+chr$ (13)
Enter: 570 key 9, "save"+chr $(34) +"e" +chr$ (13)
Enter: 580 return
Enter: 30 gosub 500
```

Those lines give some reminder messages to you, the user. In line 510, the last statement commands that window number 1 shall be from column 1 to column 80 of the bottom three rows: 23, 24 and 25. Lines 520 and 530 print the messages in window no.1 (?#1,). If a window number is not given, then number 0 is assumed. The previous statement in line 510 commands window no.0 (by default) to be the whole screen except the bottom three rows. The STRING$ function in line 520 prints CHR$(154), 80 times.

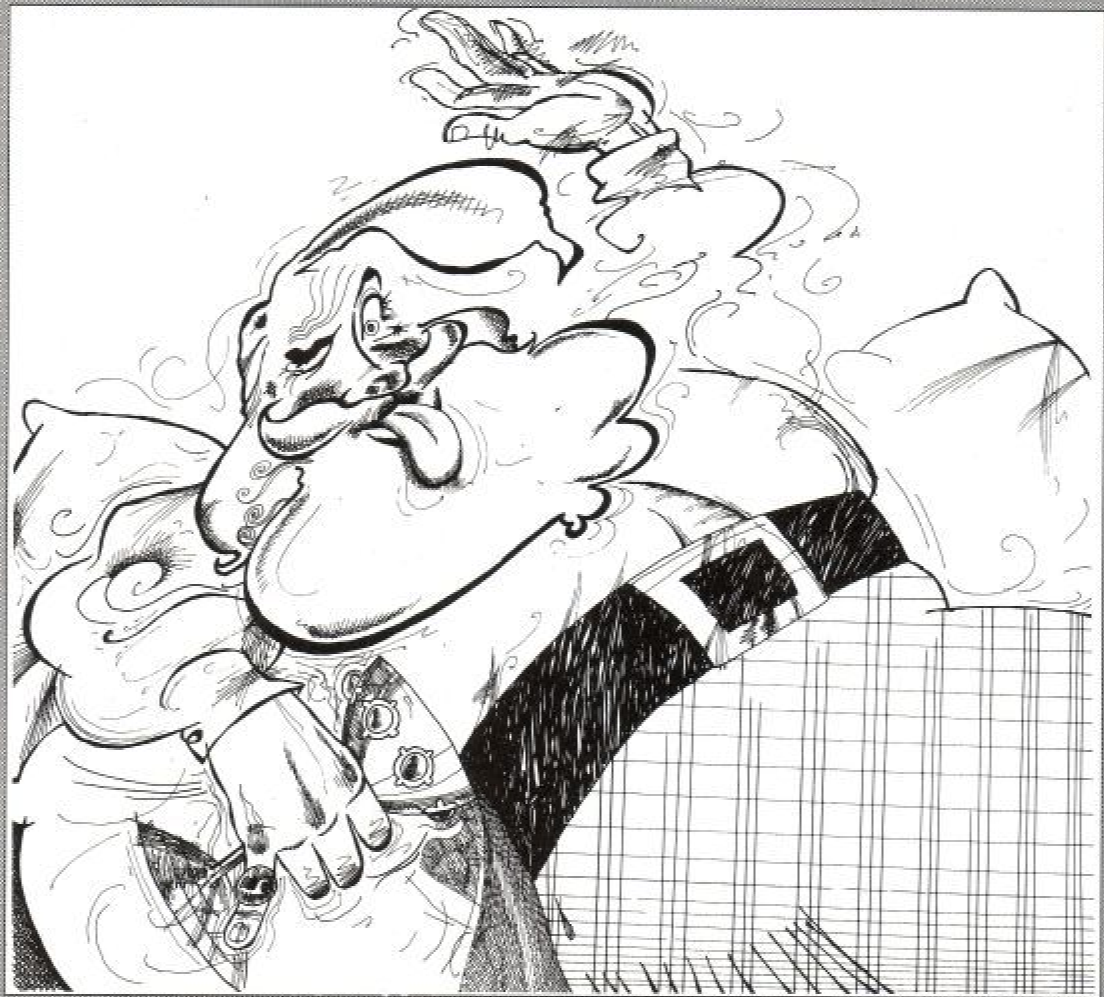
Lines 540-570 re-define some function keys. The e in line 570 is my file name for my 'everything' file. The CHR$(13), in these four lines, is a control character command being the equivalent of [ENTER]. On the CPC6128 the function keys are marked f1,f2,f3,... On my CPC464 the function keys are in a block of twelve keys to the right of the main keys: they are marked with the figures, but without the f prefix.

My CPC464 accepts the KEY commands as detailed above, but there might be some models in existence which do not. If yours is one of those, then when you press [7] on the numeric pad, – after running the program and pressing [ESC] twice – the screen will show '7' instead of listing the program. In this case you should use the expansion characters as given in the appendix III of the Handbook. Instead of 'key 6', type 'key 134'; for 'key 7', type 'key 135'; for '8', type '136'; for '9', type '137'.

The messages, plus some others, are those which I use; you will use your own. You may be puzzled why I should want to remind myself that JL means July. Really, I need the reminder when I am making entries, rather than when I am reading them.

There is no easy way, yet, to add data to your list so next month, we'll spend some time making it easy. 'Till then, spend time getting aquainted with the program.


FROM ALTERNATIVE SOFTWARE
THE LEADERS!
AVAILABLE FROM ALL GOOD COMPUTER SOFTWARE STORES
CBM64/128
KIDS PACK
SIX SUPERB ALL TIME FAMILY FAVOURITES EVERYONE A TOP CHART HIT. INCLUDES: COUNT DUCKULA, POPEYE, SUPERTED, THE WOMBLES, SOOTY & SWEEP AND POSTMAN PAT, THE NUMBER ONE HIT, VOTED "GAME OF THE YEAR". AVAILABLE FOR ONLY £12.99 ON SPECTRUM, COMMODORE 64 AND AMSTRAD
CBM64/128
20 AWESOME GAMES
GINORMOUS COLLECTION
IT'S HERE AT LAST!!! THE GINORMOUS COLLECTION. 20 AWESOME CHART TOPPING GAMES. THERES SPORTS, ARCADE ACTION, FLIGHT SIMULATORS AND CARTOON FUN!!! GREAT VALUE!!!... TRULY AWESOME. ONLY £14.99. AVAILABLE ON SPECTRUM, COMMODORE 64 AND AMSTRAD.
NOW AVAILABLE FIREMAN SAM THE COMPUTER GAME!! YOU HELP FIREMAN SAM, EVERYONES FAVOURITE HERO, AS HE STARS IN THIS HIGHLY ENTERTAINING GAME. FEATURING A HOST OF DELIGHTFUL CHARACTERS FROM THE HIT TV SERIES. ONLY £3.99 ON SPECTRUM, COMMODORE 64 AND AMSTRAD FROM ALTERNATIVE SOFTWARE. THE LEADERS.
AT LAST! ITS NOW ON COMPUTER. THE MESSIEST GAME SHOW IN THE WORLD. DOUBLE DARE AS FEATURED ON BBC TVS "GOING LIVE". ANSWER THE QUESTIONS!, TAKE THE PHYSICAL CHALLENGES AND PREPARE TO BE SLIMED AND GUNGED ON THE HECTIC ASSAULT COURSE!!! ONLY £3.99 ON SPECTRUM, COMMODORE 64 AND AMSTRAD.
4 GREAT GAMES FOR ONLY £3.99 OTHER TITLES INCLUDE 4 MOST MEGAHEROES 4 MOST WARZONE 4 MOST AIRPOWER 4 MOST SPORTS 4 MOST ACTION 4 MOST FUN AND COMING SOON 4 MOST BALLS BOOTS & BRAINS 4 MOST SPORTS 4 MOST CUTE 4 MOST FIGHT & FRIGHT
IF YOU HAVE ANY PROBLEMS OBTAINING THESE OR ANY OTHER OF OUR SUPERB GAMES, PLEASE SEND A LIST OF THE TITLES YOU REQUIRE ALONG WITH A CHEQUE OR POSTAL ORDER MADE PAYABLE TO ALTERNATIVE SOFTWARE LTD.
ALTERNATIVE SOFTWARE
ALTERNATIVE SOFTWARE LTD. UNITS 5-7 BAILEYGATE INDUSTRIAL ESTATE PONTEFRACT WF8 2LN



TROUBLE SHOOTING

Struan Bartlett helps you to pinpoint your modem problems in the latest comms bonanza.

It's all very well loading up ZMP, selecting the dial command and phoning up your favourite Bulletin Board, and for most of us this will work most of the time. But I haven't met anyone yet who hasn't had at least some problems trying to get his or her modem to connect with someone else's. One way of interpreting 'Sod's Law' is that if you assume that nothing will go wrong, then something, if not everything, will! Anyway, even if you never experience any problems whatsoever the time will surely come when someone you know will, and you can show off your extensive knowledge and expertise!

When a modem is switched on, it goes into its 'command mode'. Here, any characters that you send to it are interpreted as commands, and tell it what to do, like dial, answer, and configure this, that and the other. When it's made a successful connection with another modem, any characters you now send to it, get echoed straight along the phone line to the other modem (and vice-versa). While it's doing this, it's monitoring for a special character sequence that tells it to go back into command mode. Fine. But which characters tell it to do what?

Telling the modem what to do is rather like operating CP/M, but just possibly easier! Most modern modems are what is called 'Hayes' compatible. This means that they all use the same set of commands to operate them. I'm told that back in the past when modems were first being manufactured, modem designers were inclined to give their own modem its own set of commands to operate it. As I'm sure you can imagine, this could make things quite confusing. As an analogy, how easy would it be to learn to program in BASIC if you used several different computers and each had a different version of the language. (Yes, I know they do.) Anyway, the point is that one set of modem commands began to be used more consistently, and became a standard, and these commands were those of the Hayes modem.

OK. So as to avoid confusion, I'll put characters that you can type in, or get printed on the screen, in bold and any keys to press will be in bold and in square brackets [ ]. Almost all of the Hayes commands begin with AT (ATtention). Try loading up ZMP and without more ado (except making sure that your modem is switched on!), type AT [RETURN]. You should see OK printed in response. You can use this to check whether your modem is switched on or not.

The Hayes commands come in two types: those which tell the modem to act and do something; those which just configure the modem's operation. The most essential command of the former type is ATD. This comes in several forms: ATDP and ATDT. The difference is that, the first dials in Pulse mode, the second in Tone mode. Everyone's familiar with pulse dialling: it goes click click click and takes half a minute to dial a number. Tone dialling beeps once for each digit and as a result is much faster and much more pleasant to use. Unfortunately, some modems (mostly the older models) do not support tone dialling, and also, only the more modern digital telephone exchanges support it. BT have been in the process of installing these for the last few years but I believe there may still be some areas left to alter. To find out whether your modem and exchange support tone dialling, turn up the volume on your modem (if you have one), or listen in on another phone extension, and type ATDT 321 [RETURN]. If your modem goes 'beep beep beep' then it supports tone dialling, and if you don't get any response from the exchange (like a continuous tone) then it presumably doesn't support tone dialling. Here I think a warning is in order. Most modems don't support the complete Hayes command set, but

only some or most of it. This isn't usually a problem, so just try the commands to see which work, or look at your manual.

An example of a command of the second type is ATXn. This alters the ability of the modem to dial depending on the tone coming from the exchange. For example, ATX2 tells the modem to dial only if there is a dial tone, but not if there isn't. ATX0 tells it to dial regardless of the dial tone. ATX also alters the amount of 'help' text (called 'Result Codes') that the modem sends back to your CPC to tell you what it's doing. For example, ATX0 tells it only to reply with the 'Basic set' of OK, CONNECT, RING, NO CARRIER, and ERROR, whereas using ATX1 tells it to use the 'Extended set' - all of these, plus telling you at what speed it has connected (like CONNECT 1200).

More obviously useful, is a command that alters the operation of the speaker on the modem. As mentioned at the start, the time will come when, for example, you phone up a Bulletin Board, it answers, and then one or the other of the modems 'hangs up' (in the phone line sense, not the Oh *?!£$& my Arnold's "hung up" just when I got 14 quadrillion points on Zargon Mega-Attack and still had 17 lives left!' sense). If that happens, it can be quite useful to listen in to the noises that the modems are making, to compare them with the noises you get when everything is working. ATMn alters when the speaker is switched on and off. ATM0 turns it off permanently, ATM1 turns it off when you're online, and ATM2 keeps it on permanently.

Right! They are some of the Hayes commands, the rest will probably be in the appendix of your modem manual. Suppose you want to make a connection via modem with someone you know personally. (This will obviously be cheaper in some cases, and quicker, than doing your deeds via an actual Bulletin Board.) If you've arranged it beforehand you can switch one of your modems into auto-answer mode (if it can) by typing ATS0=1 [RETURN], and then get the other modem to phone it up, just as if it were a Bulletin Board. When it detects the rings from the phone it will answer and the two modems should proceed to connect. (This is in fact simply the basis for a Bulletin Board.) The other method has many more advantages. Here you phone up the person concerned (or vice-versa) so that you can talk. Then, when you're ready, one of you types ATA [RETURN] and the other types ATD [RETURN]. If you're the one typing ATD you may need to use ATX0 first, since there will be no dialling tone. ATA tells the modem to answer immediately and so shouldn't need an auto-answer modem. You should hear the normal tones and noise, and the two modems should connect. After connection (with either method) you can now chat to each other textually, or file transfer or whatever to your hearts delight.

The advantages of the second method are that if (as is sometimes the case), the file transfer doesn't work initially, you can just give ZMP the [ESC] X to hang up, and pick up the phone to sort things out. Also, due to British Telecom's pricing system, calls get rounded up to the nearest 5p or so. Repeatedly phoning the other guy up until you get it right can come to a lot of money compared to the cost of the actual time online.

If you load up ZMP and type [ESC] C M you bring up the modem command configuration menu. Option A is the string to send to the modem to initialise it. I currently have this set to ATZ!~~~ATV1X1!~. ATZ resets the modem's registers, ATV1 tells it to use words for the result codes (instead of numerical codes), the '!' tells ZMP to send a [RETURN] character and the '~' tells ZMP to pause for a second or so. As described above, option B is set to ATDT, etc.

Whew! Okay, chew that over while I talk about trivia. In case you hadn't already noticed, Christmas has come and gone again. Remember last year? When your little brother unravelled the tape from your new game? When gran tripped over the cable of your new mouse? When the joystick broke after playing Daley Thompson's Decathlon 17 times ('fraid I'm a bit out of touch with the games scene!). 'What has this got to do with Comms?', you probably won't be asking. Well I'll tell you. Not much. Except that wouldn't it have been nice to get a modem for Christmas?

That about switches it off for this month. Next month I'll be writing about something different. I hope to be doing a review or a rundown of modems and commercial bulletin boards in the nearish future, so watch this space. Incidentally, Surface UK are selling a very reasonable 2400bps modem (by Supra) for £120, about the cheapest I've seen yet. Hope you had a merry Christmas and have a Happy New Year!

A = 300/300 (V21) B = 1200/1200 (V22) C = 2400/2400 (V22bis) D = 1200/75 (V23) E = V32 (one of the 9600bps standards) F = HST (another of the 9600bps standards). All entries are N-8-1, and are operative 24 hours a day unless otherwise specified as Mon-Fri hours, then Sat/Sun hours.

ACE CENTRE	Headington	0865 64958	ABCD
ADULLAMS CAVE	Southend	0702 78330	ABCD
CLIFF'S CORNER	Lowestoft	0502 518274	ABCD M-F:2200-1000 S/S:24 Hrs
COLNET89	Colchester	0206 763789	ABCD
ARCADE	Addiscombe	081 654 2212	ABCD
ARCHIVE	Thornton Heath	081 683 0629	ABCD
AUREAL	Market Harborough	0858 466594	ABCF
BARNEYS RUBBLE	Kings Hth	021 441 1801	ABCD
CASSOCK SMOLDRING	Blackburn	0254 662805	ABCD
CAVEMAN	Barrow in Furness	0229 43609	ABC M-F:24 Hrs S/S:Offline
BLANDFORD	Blandford	0258 455117	ABCD
BOAR'S NEST	Swindon	0793 724195	ABCD M-F:1900-0700 S/S: 1900-0700
ARGUS II	Gateshead	091 490 0327	ABCD
ARGUS PROJECT	Ryton	091 413 6859	ABCD
ALMAC 1 & 2	Grangemouth	0324 665460/49	ABCEF
ASSISTANT	Edinburgh	031 557 9094	ABC
EMPYRION	Swansea	0792 580781	ABCD M-F:1900-0600 S/S:24 Hrs
LIMA DELTA	Prestatyn	0745 855959	ABCD M-F:2000-0800 S/S: 2000-0800

BITS

For Sale

AMSTRAD CPC6128 with colour monitor, loads of hardware and software. Worth over £1700. Will split. Phone 0924 251608 for free price list.

CHEAP Amstrad games for sale on tape. Games like Robocop and Last Ninja 2. For a full list, send a SAE to Chac Hau Lam, 7 Maple Grove, Newark, Notts NG24 4NB.

FOR SALE ACU magazines from February 1988 to November 1991. Only August 1990 missing. Any reasonable offers accepted. Write to Stephen Muddell, 3 Bexhill Road, Eastbourne, East Sussex BN22 7JH.

CPC6128 colour monitor, joystick and games including Robocop, Turtles, Castle Master, Stuntcar Racer, Shadow Dancer and lots more. Tape lead, art studio, mouse, light phaser. £269. Ring James on 0302 746253.

6128 Educational Study Aids for GCSE and A Level English - Hamlet and Macbeth discs £7.50 each. Telephone 0892 543350.

FOR SALE Protext word processor on tape. All in its original packing and with original manual. Price £15, including P&P. If interested, write or phone, Mr M. Manning, 9 Steerforth Street, Earlsfield, Wandsworth, London SW18 4HH. 081 947 0621.

FOR SALE Amstrad CPC464 colour monitor, joystick, over 100 games, ie, Shadow Warriors, Turbo Outrun and Kick-Off II. Magazines, £180 ono. Phone 021 423 3371 and ask for Mark.

PAGEMAKER Deluxe DTP for 6128/664+64k. Reviewed AA73 pg 22/23 - "Cheap but not nasty", verdict 95%. Amazing value for only £5 inclusive. SSAE for details to CPC Domain, 119 Laurel Drive, East Kilbride, Glasgow G75 9JG.

AMSTRAD/Sinclair computer chips. RAMs, ROMs, ULAs etc. Also V30 CPUs. All brand new. Lost interest in hobby. Phone for full list from Graham Bourne on 0793 824891.

AMX ART mouse, mouse mat, multiface II, 13 games on disc including Batman, Bloodwych, Starglider. 16 games on tape. Over 30 mags. Worth £300+, will sell £150. Phone 0745 583018.

ACU All issues from Jan 1987 to December 1990. Offers? New and unused JY3 £5. MP2 £20. MP3 £25 plus P&P. Telephone Storrington (0903) 746744.

CPC6128 with colour monitor, joystick, DMP2000 printer, games and word processing software. Excellent working condition. £300. Telephone 0276 71124.

SIREN 3.5" disc drive for CPC6128, plus Ramdos and 3.5" utilities disc. Cost £130, will sell for £70 plus postage. Telephone 0294 79229. (Also various software, Supercalc, TasSign, Mini-Office 2, MFU.)

Wants/Swaps

HAS ANYONE got Stop Press and AMX mouse on disc to sell for £20. Rombo rom box, KDS 8-bit printer port and a de-cable drive switcher for £10 each. Phone Darren on 0302 864730 after 6pm.

DOES ANYONE have a copy of GAC to sell or swap. Must be on tape. Contact Neil Padgett, 46 Oak Drive, Northway, Tewkesbury, Glos GL20 8QW.

WANTED Pools Master prog with manual for CPC464. Contact A Sheldon, 6 Kirkstead Gardens, Nottingham NG7 5EJ. (0602 780202).

WANTED Colour monitor for CPC6128. Phone Gerald Leicester 0533 873492.

WILL SWAP either Golden Axe, Vendetta or Dick Tracey for either Shadow Dancer, Shadow Warriors or Dragon Ninja. Send with SSAE to D. Barry, 2 Linden Avenue, Wellington, Telford, Shropshire TF1 1QR.

EXCHANGE games and utilities. Would like Golf and Flight simulators. Write for more info to Mr S. Jackson, 156 West Street, Dunstable, Beds LU6 1NK.

Services

DIZZY SOLUTIONS for Dizzys 1, 2, 3 and 4, including maps. £1 each or £3.50 for all four. Send an SAE to Iain Revill, 43 Paddock Close, Calverton, Notts NG14 6GJ.

CHEAP ADS, penpals, swaps, for sales, fanzines etc send two second class stamps for details to D. L. O'Glesby, 59 Springfield Street, New Basford, Nottingham NG7 7DU.

HELP GIVEN on Dizzy's 1-4, Fast Food, Kwik Snax and Panic. 50p each. Write to M. Pacione, 28 Elizabeth Avenue, Milton of Campsie, Glasgow G65 8HT for full list or send money if help wanted.

I WILL CREATE a quality loading screen for any game you have written. Tape only. Send 75p, SAE, Game on tape and blank tape to Joe Walters, 8 Chater Road, Oakham, Leics LE15 6RY.

PROGRAM to list 540+ multiface pokes. Choice of output to screen or printer. Send blank disc, £1 and SSAE to Stephen Muddell, 3 Bexhill Road, Eastbourne, Sussex BN22 7JH.

HELP OFFERED on all aspects of BASIC and assembly language programming. Don't forget to send an SSAE, Sean McManus, 226 Chertsey Rise, Stevenage, Herts SG2 9JG.

CONVERT your 464 to 6128. Keep 464 equipment and buy 6128 programs. Both will work. Microchip conversion carried out. All you need is disc drive. Example Stop Press DTP on 464. Contact R. J. Amison, 56 Drubbery Lane, Burton, Stoke on Trent ST3 4BH. 0782 318548.

I HAVE STARTED A BUSINESS for people who require tailor made programs for all CPCs. Also, does anyone have a Firmware Guide for the 464 to lend? Contact Mr Manning, 9 Steerforth Street, Wandsworth, London SW18 4HH.

WOW SOFTWARE is a company selling new and re-released adventure games for the CPC. Send SAE for the latest list to 78 Radipole Lane, Weymouth, Dorset DT4 9RS.

AMSTRAD COMPUTER PARTS available for the entire range. Plus many computer accessories available. Just call me or write to J. Hayward, 53 Eny Road, Cardiff CF5 2JF. 0222 554369.

FREE for CPC range. A helpline to solve your CPC problems. Software, hardware and games covered. Write enclosing SAE to Chris Williams, 6 Frank Street, Great Horton, Bradford BD7 3BT.

KEYPRESS cheats for over 50 games, 50p each or £3 the lot. Also all format cheat book £3. Send SSAE to Rhys Evans, 69 Vardre Road, Clydach, Swansea, Wales SA6 5LU.

GAMES DISC from strategy to shoot-em-ups. Great graphics and playability in M/Code. £2.50 if you supply disc or £4.95. Kevin Heywood, 18 Sinclair Avenue, Banbury, Oxon OX16 7DW.

Fanzines

NEW FANZINE for the Amstrad and C-64 tape. We will review PD so please send any PD and other software for review to R. Stedman, 8 Wulfruna Gardens, Finchfield, Wolverhampton WV3 9HZ.

CROCO+ The European fanzine for the Amstrad 6128 is here! 720k of hints, tips, reviews, pokes and interviews. Please send a 3" disc, £1 and /SSAE to Song Yow Ly, 8 Wooderson Close, South Norwood, London SE25 6JP.

LFACC PRINT-OUT, cheats, Beginners pages, competitions, PD, M/C/Basic, adverts, picture pages, gossip, reviews etc. Only 70p. Add 20p if overseas. Alex Banks, Tickeywood, Crapstone, Yelverton, Devon PL20 7PW. Tel: 0822 852085.

ADVENTURERS HERALD Out now, with news, reviews and just about anything to do with adventure. Only 80p from PO Box 522, Tweedale, Telford, Shropshire. Any budding reviewers please get in touch.

CPC FANZINE called Play Mates. Full of reviews, tips, pokes and Bonzo news. With P&P just £1. Carl Surrey, 37 Fairfield Way, Barnet, Herts EN5 2BQ.

AOK Fanzine. Includes features, reviews, type-ins, small projects and more. Send 60p (includes P&P) to Paul Escott, 31 Colebrooke Road, Shirley, Solihull, West Midlands B90 2LB.

CPC DOMAIN The only monthly magazine for serious CPC users. Only £1.25 for over 40m packed pages. Six month subscription for £7.50. CPC-Domain, 119 Laurel Drive, East Kilbride, Glasgow G75 9JG.

Penpals

DOES ANYBODY who lives in the Kirkcaldy, Fife area want to come along to my house in the Glebe Park/Baulsusney Road area to share programs and games? Contact Ross Anderson, 12 Maria Street, Kirkcaldy, Fife, Scotland.

CPC PENPALS wanted to swap games on cassette only for the 464. Also demo tapes, so send your lists to Matthew Glover, 12 Garrick Street, Alvaston, Derby DE2 8PT.

PENPALS WANTED to swap games and demos on disc. Any age, any country. Help given on new and old games. Write to Richard Wildey, 41 Enmore Gardens, London SW14 8AF.

IMPORTANT NOTICE

Please note that due to popular demand for the Bits section in ACU, a price for each advert has had to be introduced to cover our running costs. What this means is that, from this issue onwards, the cost of an advert will be a flat rate of just £4.50, which still makes it the cheapest means of advertising your wares in the CPC magazine forum. Apologies to all concerned, but we've had to take someone on to deal with the massive response to the Bits service, to give it the attention it so rightly deserves.

AMSTRAD COMPUTER USER

ACU BITS 'N' PIECES

Please send this coupon to Bits, ACU, 116-120 Goswell Road, London EC1V 7QD, enclosing a cheque/PO for £4.50, made payable to MCM Ltd.

NAME ____________________

ADDRESS ____________________

DAYTIME TELEPHONE No. __________

The cost of 1-30 words inclusive is £4.50 for private ads in Bits. For the Pieces section, just fill in a brief outline of your program and let ACU do the rest for FREE.

PIECES

Another chance to take advantage of the incredible ACU disc/tape offers.

If you haven't grabbed one of our fantastic discs or tapes yet, then what have you been up to? This month, we are repeating the stocklist already available from DGC Software, before moving on to tempt you next month with copies of the original and best ACU games anthologies.

If you are still not hooked and you fancy something a little more serious, then keep your eyes peeled for another chance to get hold of the brilliant Utilities Unlimited offering, which should be ready for take-off very, very soon.

Remember, when you purchase an ACU disc/tape from the Pieces section, there is also an exclusive blank disc offer thrown into the bargain. Basically, if you want value for money, then fill in the coupons below, now!

Please send me a copy of Learn Amstrad Basic the Easy Way by Glycar Computing on disc/tape (delete where applicable)

I enclose £12.95 for the disc ☐
I enclose £10.95 for the cassette ☐

Name ....
Address ....
....
....

Please make all cheques/POs payable to DGC Software.

Send this coupon to: DGC Software, 12 Stone Croft, Eccleshill, Bradford. BD2 2HW.

Please send me a copy of Money Master by Glycar Computing on disc/tape (delete where applicable)

I enclose £12.95 for the disc ☐
I enclose £10.95 for the cassette ☐

Name ....
Address ....
....
....

Please make all cheques/POs payable to DGC Software.

Send this coupon to: DGC Software, 12 Stone Croft, Eccleshill, Bradford. BD2 2HW.

Please send me a copy of Easydraw 2 by Glycar Computing on disc/tape (delete where applicable)

I enclose £12.95 for the disc ☐
I enclose £10.95 for the cassette ☐

Name ....
Address ....
....
....

Please make all cheques/POs payable to DGC Software.

Send this coupon to: DGC Software, 12 Stone Croft, Eccleshill, Bradford. BD2 2HW.

Please send me a copy of ACU Machine Code Assembler on disc/tape (delete where applicable)

I enclose £5 for the disc ☐
I enclose £4 for the cassette ☐

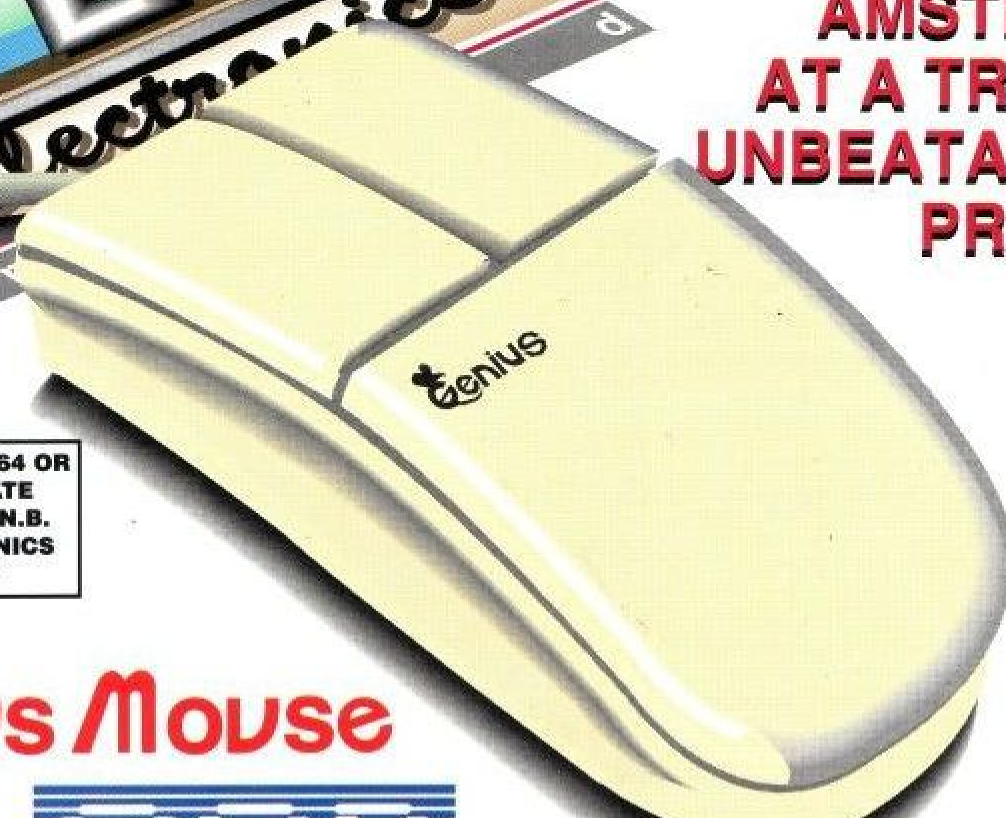
Name ....
Address ....
....
....

Please make all cheques/POs payable to DGC Software.

Send this coupon to: DGC Software, 12 Stone Croft, Eccleshill, Bradford. BD2 2HW.

ADVERTISERS INDEX

NOW A TOTAL MOUSE/ GRAPHICS PACKAGE FOR YOUR AMSTRAD AT A TRULY UNBEATABLE PRICE!!





TAPE OR DISK FOR 464 OR 6128 (PLEASE STATE WHICH REQUIRED) N.B. 464 NEEDS DK'TRONICS 64K RAM PACK



Genius Mouse

COMPLETE WITH OCP ADVANCED ART STUDIO

- **Genius Mouse is a high resolution two button mouse featuring optical counting, teflon guides, microswitches, rubber coated ball and high quality interface.**
- **When combined with OCP Advanced Art Studio this graphics package is quite simply the best system available. The features are unmatched...**
- Create an image - shrink it, expand it, move it, rotate it, copy it, colour it, etc., etc.
- Spray patterns or shades, make elastic lines - stretch and manipulate shapes.
- Zoom in to add detail in fine mode. ● Full cut and paste facilities plus excellent printer support.
- Pulldown/Icon driven menus for ease of use. ● Mouse operation, plus joystick and keyboard control.
- 16 pens, 8 sprays, 16 brushes - so flexible anyone can create superb graphics easily.

COMPLETE WITH MOUSE INTERFACE



- The Genius Mouse Graphics System comes complete with the special Mouse Interface to allow super smooth control.
- Attractively styled to match your 464 or 6128 design and colour. Simply plugs into Expansion/Joystick port.

ONLY £49.99

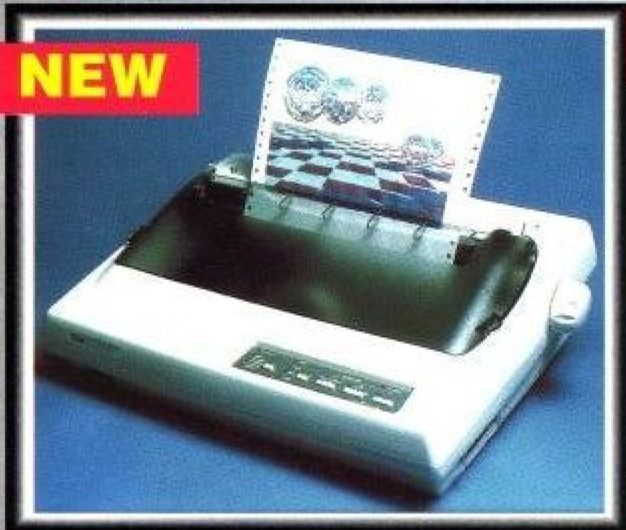
TOTAL PACKAGE INCLUDES GENIUS MOUSE, INTERFACE, OCP ADVANCED ART STUDIO PLUS FREE MOUSE MAT AND HOLDER



FREE!

MOUSE MAT AND MOUSE HOLDER

(WORTH £12.99) WITH EACH PACKAGE



NEW

LC 200 COLOUR PRINTER PACKAGE

NOW YOU CAN PRINT OUT YOUR PICTURES IN FULL COLOUR!

- The Star LC200 Colour Printer not only prints in Near Letter Quality for your regular jobs but also prints out your pictures from Art Studio, etc., in genuine colour!
- LC200 is a full Centronics printer so it works with other computers (Amiga, ST, etc.).
- Made possible by Datel's unique colour printer driver - now you can have a hardcopy in up to 16 colours!! ● No more to buy - just plug in and print!!

PACKAGE INCLUDES... STAR LC200 COLOUR PRINTER RRP £299.00
CENTRONICS PRINTER LEAD RRP £9.99
DATEL COLOUR PRINTER DRIVER SOFTWARE RRP £19.99
NORMALLY £327.98
COMPLETE PACKAGE NOW ONLY £239.00

COLOUR PRINTER DRIVER AVAILABLE SEPARATELY ONLY £19.99

- If you already have an LC10 or LC 200 Colour Printer we can supply the Driver separately.

HOW TO GET YOUR ORDER FAST!

TELEPHONE [24Hrs] 0782 744707 CREDIT CARD ORDERS

ORDERS NORMALLY DISPATCHED WITHIN 48 Hrs. ALL CHEQUES/POSTAL ORDERS MADE PAYABLE TO....

DATEL ELECTRONICS LTD.

GOVAN ROAD, FENTON INDUSTRIAL ESTATE, FENTON, STOKE-ON-TRENT, ST4 2RS, ENGLAND.

FAX 0782 744292 TECHNICAL/CUSTOMER SERVICE 0782 744324



125+

- Four ultra-sensitive fire buttons
- Ergonomically designed control handle for supreme comfort
- Auto-fire function
- Heavy duty base with strong stabilising suction cups
- +2/+3 selector connector
- 8 directional control
- Automatic centering
- High impact robust body
- Compatible with Sinclair Spectrum +2/+3, Commodore, Atari and Amstrad computers and video game systems.
- **Sega Master Series version available**

. ONLY £9.99

CHEETAH

THE BUG



STAR PROBE

- Four ultra-sensitive microswitched fire buttons
- Ergonomically designed custom control handle for supreme comfort
- Auto-fire function
- Indestructible metal shaft
- Ultra-light 8 directional microswitched control
- Heavy duty base with strong stabilising suction cups
- +2/+3 selector connector
- Automatic centering
- High impact robust body
- Compatible with Sinclair Spectrum +2/+3, Commodore, Atari and Amstrad computers and video game systems.

. ONLY £14.99



MACH I

- Four ultra-sensitive fire buttons
- Ergonomically designed control handle for supreme comfort
- Auto-fire function
- Indestructible metal shaft
- Ultra-light 8 directional microswitched control
- Heavy duty base with strong stabilising suction cups
- Automatic centering
- High impact robust body
- Compatible with Commodore, Atari and Amstrad computers and video game systems.

. ONLY £12.99



EXTERMINATOR

- Two ultra-sensitive fire buttons
- Ergonomically designed control handle
- 8 directional control
- Automatic centering
- Heavy duty base with strong stabilising suction cups
- High impact robust body
- Compatible with Commodore, Atari and Amstrad computers and video game systems.

. ONLY £6.99





TURBO FIGHTER

- Ergonomically designed for supreme comfort
- 2 ultra-sensitive fire buttons
- Heavy duty base with strong stabilising suction cups
- Robust clamp for secure desktop mounting
- 8 directional control
- Automatic centering
- High impact rugged body
- 'X' and 'Y' axis trim controls
- Additional *Joystick B* 'Y' axis control (for PC users only)
- Analogue to digital converter included for compatibility with PCs as well as Amiga, C64, Atari ST, Amstrad CPC etc.

. ONLY £49.99

THE BUG

- Ergonomically designed body for supreme comfort
- Suitable for right or left hand
- 2 ultra-sensitive microswitched fire buttons
- Auto-fire function
- 8 directional microswitched control
- Indestructible metal shaft
- Automatic centering
- +2/+3 selector connector
- Compatible with Sinclair Spectrum +2/+3, Commodore, Atari and Amstrad computers and video game systems.

. ONLY £14.99

THE NEW GENERATION IN JOYSTICK TECHNOLOGY

- 12 month warranty on all products shown.
- Older computers may require interfaces and/or adaptors – not included.
- Prices include VAT, postage and packaging.
- Dealer enquiries welcome.
- Cheetah products available from branches of

Argos
CURRYS SUPERSTORE
Dixons
Harrods
John Menzies
WHSMITH
Tandy
TOYS R US

High Street stores and all good computer shops.



THE TORTOISE

- Three ultra-sensitive fire buttons
- Ergonomically evolved control shell
- Automatic centering
- Heavy duty body with strong stabilising suction feet
- 8 directional movement
- Cage sold separately
- Versions include ZX Spectrum, 16K, 48K, 128K, (interface sold separately), +2, +3, C64, Amstrad, Atari, Sega and Nintendo.

. ONLY £9.99

All specifications and prices subject to change without notice.

CHEETAH

9203 38.00

CHEETAH INTERNATIONAL LTD
Cheetah House, Bedwas Business Park, Bedwas, Gwent NP1 8DU
Tel: 0222 – 867777 Fax: 0222 – 865575